2008

Route 236 Corridor Study Kittery-Eliot-South Berwick 2008

Maine Department of Transportation

Route 236
Corridor Study

Kittery - Eliot – S. Berwick

Prepared By

Maine Department of Transportation
Bureau of Transportation Systems Planning

October 2008

Route 236
Corridor Study

Kittery - Eliot – S. Berwick

Prepared By

Maine Department of Transportation
Bureau of Transportation Systems Planning
Edward W. Hanscom, P.E., Study Manager
Dennis E. Emidy, P.E., Transportation Engineer

July 2008

Contents

List of Figures

List of Tables

I Introduction

The Route 236 Corridor Study focuses on a 10.8-mile corridor of Route 236 between Kittery and South Berwick. As shown in Figure I-1, this corridor extends from north of the Kittery rotary on Route 1, through Eliot, to the junction of Route 236 with Portland Street (Route 4) in South Berwick.

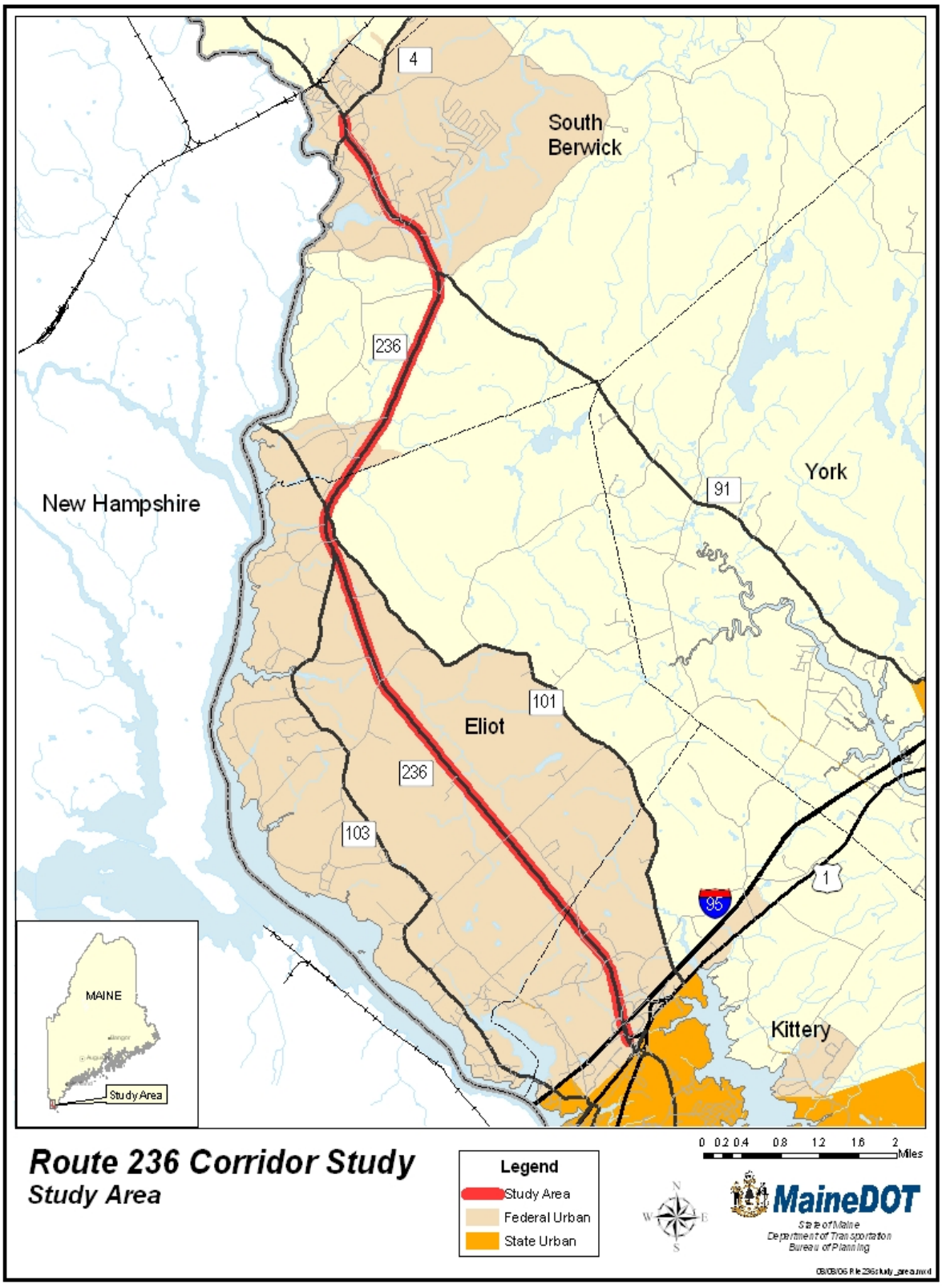
The primary objectives of this Planning Study are:

- To evaluate existing (base) traffic and roadway conditions along the Route 236 Corridor.
- To identify existing deficiencies relative to mobility safety, physical conditions and roadway geometrics.
- To estimate travel demand conditions for the year 2026 based on historical traffic growth trends.
- To identify potential future roadway deficiencies.
- To make recommendations for roadway improvements that reduce congestion and increase safety on Route 236 in the study area.

A Route 236 Corridor Committee was formed from members of the three communities, Southern Maine Regional Planning Commission (SMRPC) and Maine Department of Transportation (MaineDOT). The Corridor Committee's main focus was to solicit input from the communities and to keep them informed about the Corridor Study and its recommendations. Members of the Corridor Committee during the study period included the following stakeholders:

- Town of Kittery
- Town of Eliot
- Town of South Berwick
- Town of Berwick
- York County Community Action Corporation (YCCAC)
- Cooperative Alliance for Seacoast Transportation (COAST)
- Maine Turnpike Authority
- Maine Department of Transportation
- Greater York Region Chamber of Commerce
- Portsmouth Naval Shipyard
- Maine School Administration District 35
- Strafford NH Regional Planning Commission
- Eastern Trail Management District
- Rockingham NH Planning Commission
- KEYS Coalition (Kittery, Eliot, York, South Berwick)
- Interested citizens along the corridor

Figure I-1: Rte 236 Corridor Study Area



II Existing Conditions

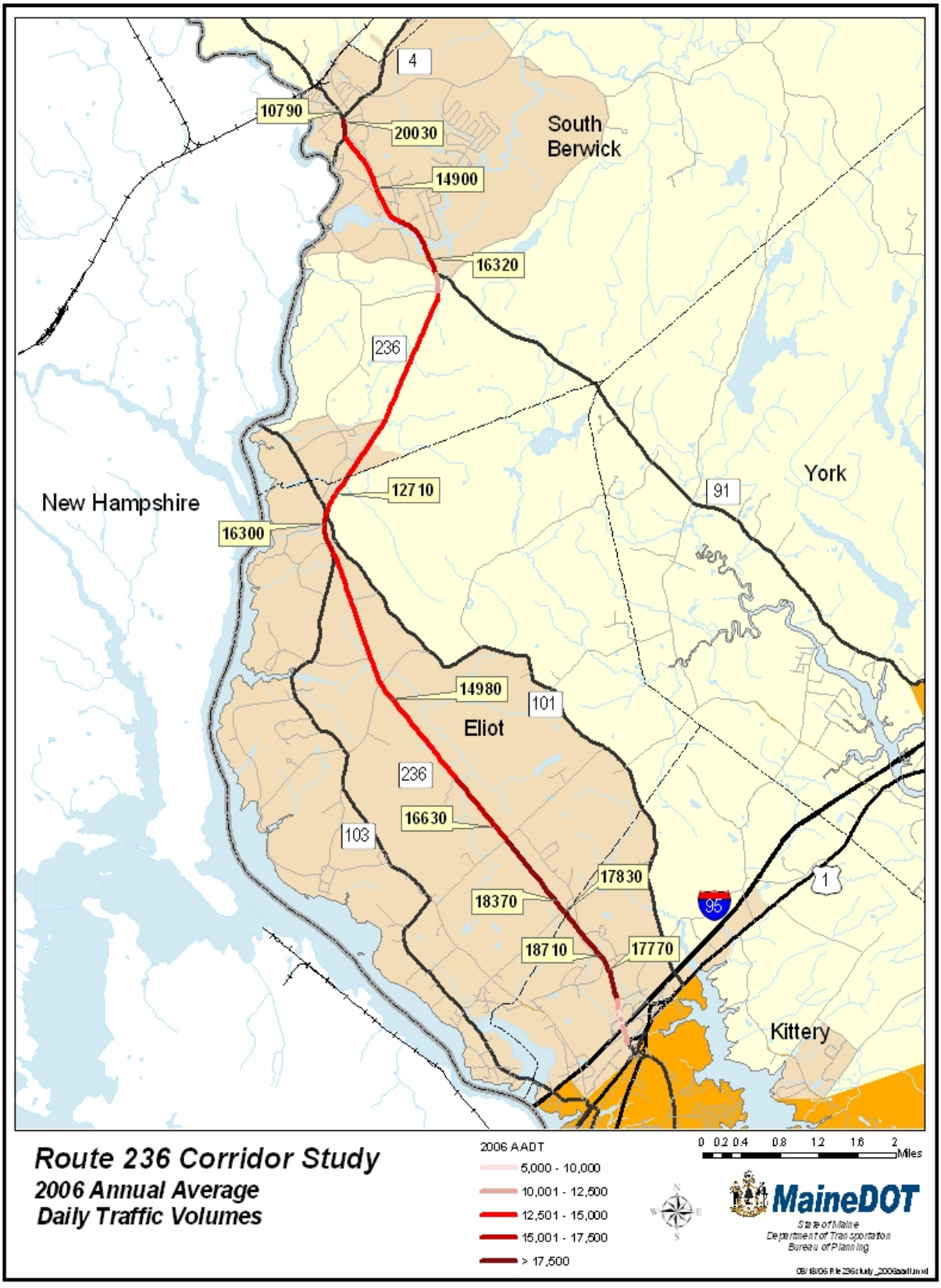
The analysis of existing conditions provides a detailed description of the current physical and operating characteristics of the Route 236 corridor. This evaluation required the development of a comprehensive inventory of existing conditions in terms of traffic volume and composition, travel speeds, level of service, physical conditions, roadway geometrics, and crash history. It also serves as a benchmark for analyzing future conditions and potential improvements. An important product of the existing conditions analysis is the identification of physical and operational deficiencies in the Route 236 corridor that adversely affect its ability to serve safely and efficiently.

A. Traffic Volumes

1. Daily Traffic Flows

Traffic volume counts obtained in the Study Area during early June of 2006 are depicted in Figure II-1. The volumes shown have been adjusted to represent the annual average daily traffic (AADT). Daily volumes will be somewhat higher than AADT in summer and somewhat lower in winter. Figure II-1 shows that AADT within the Study Area ranges from a low of 12,710 vehicles per day north of Route 101 in Eliot to a high of 20,030 vehicles per day on Rte 4/236 north of Route 236 in South Berwick.

Figure II-1: 2006 Annual Average Daily Traffic

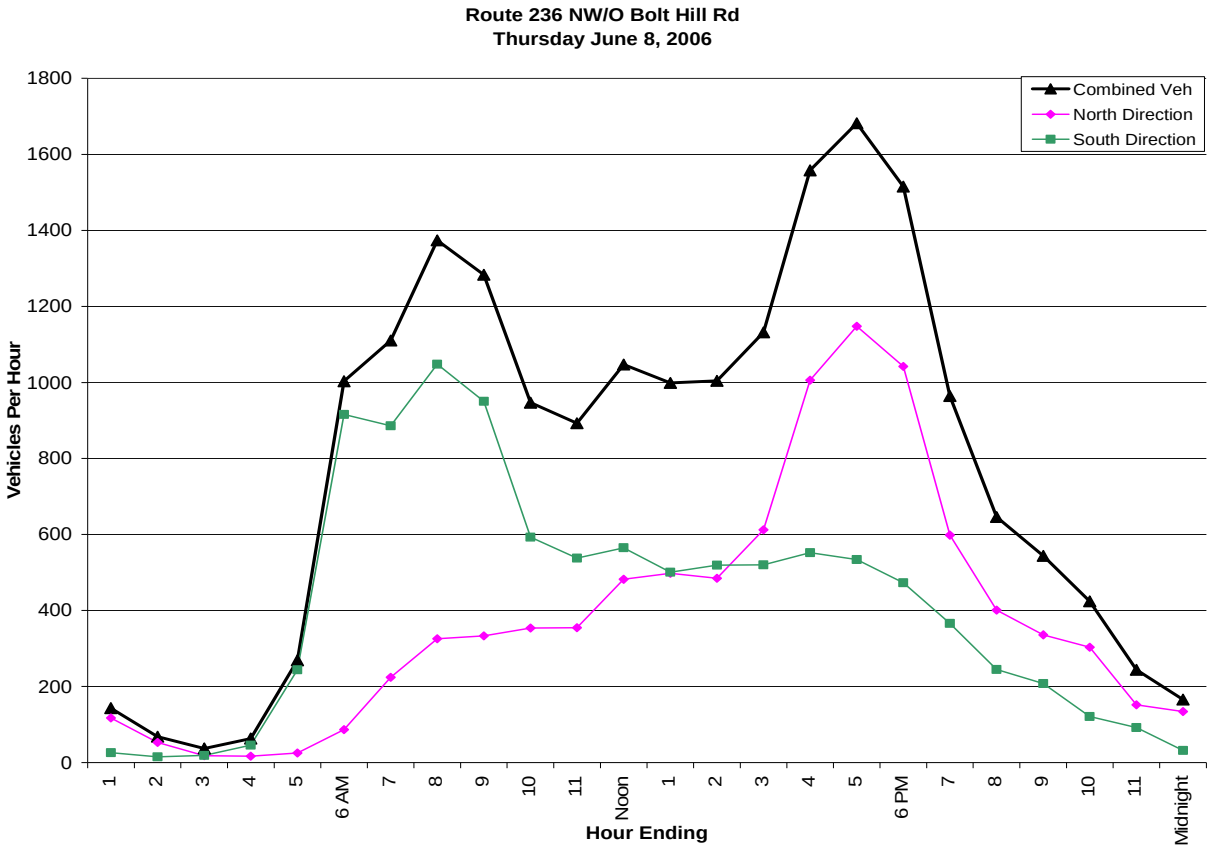


2. Hourly Traffic Variation

Figure II-2 shows the hourly variations in traffic volume by hours of the day on June 8, 2006 for Route 236 in Eliot north of Bolt Hill Rd. Figure II-2 closely resembles a typical weekday distribution for commuter traffic on an arterial highway. Peak periods of travel occur in the morning during the hour from 7 to 8 AM, and in the afternoon from 4 to 5 PM. During the morning peak, the directional distribution of the traffic volume is (over 76%) in the southbound direction toward Kittery. During the afternoon peak, the directional distribution is greater (over 68%) in the northbound direction. During the hour from noon to 1 PM the traffic volume is about 50 % in each direction. One pattern that is a little different from typical weekday distributions is the high volume of traffic (916 vehicles per hour) in the early hour from 5 to 6 AM heading in the southbound direction. This traffic is almost entirely the vehicles heading southbound. Likely destinations include the Kittery Navy Yard and points further south. The peak hour of combined traffic (over 1682 vehicles per hour) occurs in the afternoon from 4 to 5 PM. After 6 PM, the volumes decrease rapidly and reach a low of 37 vehicles per hour from 2 to 3 AM.

The hourly variation of traffic was also recorded at a site southeast of Depot Rd in Eliot. As shown in Appendix I, the morning and afternoon directional distribution of vehicles is similar to Figure II-2 but the peak volumes are not as high.

Figure II-2: Hourly Traffic Variation



3. Intersection Turning Movement Volumes

Manual turning movement counts used in the Corridor Study cover eighteen intersections. The turning movement counts were conducted in South Berwick on June 1 and June 2, 2006, and in Eliot and Kittery the following week. These counts were conducted from 6 AM to 6 PM for all approaches of the following intersections:

- Kittery – Exit 2 and Exit 3
- Kittery – Martin Road / Stevenson Road
- Eliot – Bolt Hill Road
- Eliot – Beech Road
- Eliot – Depot Road
- Eliot – Route 103
- Eliot – Route 101
- South Berwick – Route 91 (June 23, 2004)
- South Berwick – Quarry Drive
- South Berwick – Brattle Street
- South Berwick – Academy Street (south intersection)
- South Berwick – Old Mill Road
- South Berwick – Vine Street
- South Berwick – Route 4
- South Berwick – Liberty Street (at Route 4)
- South Berwick – Academy Street (north intersection)
- South Berwick – Central School
- South Berwick – Route 4 (Portland Street)

The peak hour turning volumes and times for the above intersections are shown in Appendix II.

4. Traffic Composition

Two factors that have a significant influence on the traffic carrying capacity of a highway facility are the mix of vehicles in the traffic stream (specifically the percentage of heavy trucks), and the directional distribution, which is the proportion of vehicles traveling in the peak direction. A heavy truck is defined as any vehicle with 6 or more tires touching the pavement. Table II-1 summarizes this data at various locations throughout the corridor.

Table II-1: Traffic Composition and Directional Distribution (2002 & 2003)

Town	Location	AADT	Peak Hour Vol.	% Heavy Trucks of AADT	Directional Distribution	% Heavy Trucks in Peak Hour
Kittery	S/O Martin Rd	17,770	1,748	5.90%	69%	3.09%
Kittery	N/O Martin Rd	18,710	1,758	6.02%	68%	3.30%
Eliot	S/O Beech Rd	17,300	1,767	8.12%	64%	5.49%
Eliot	N/O Beech Rd	16,630	1,741	8.34%	65%	5.86%
Eliot	S/O Depot Rd	14,980	1,585	7.89%	72%	5.43%
Eliot	N/O Depot Rd	14,800	1,528	8.36%	74%	4.84%
Eliot	S/O Rte 101	16,300	1,510	6.04%	70%	4.11%
Eliot	N/O Rte 101	12,710	1,162	7.04%	68%	4.48%
S.Berwick	S/O Rte 91	12,750	1,227	8.54%	72%	4.64%
S.Berwick	N/O Rte 91	15,150	1,531	7.73%	68%	4.48%
S.Berwick	S/O Rte 4	20,390	1,768	7.41%	67%	2.77%
S.Berwick	N/O Rte 4	10,790	1,028	5.66%	58%	2.14%
S.Berwick	Rte.4 (Portland St)	13,630	1,132	8.48%	69%	3.27%

5. Historical Traffic Growth

Table II-2 below shows the historical growth in traffic at selected locations along Route 236 between the Traffic Circle in Kittery and north of Route 4 in South Berwick. The historical data indicates that traffic continues to grow in the corridor study area. Future traffic projections will be discussed in Part III, Future Conditions.

Table II-2: Historical Traffic Trends

RTE 236 HISTORICAL TRAFFIC TRENDS

LOCATION	2006 AADT	2005 AADT	2004 AADT	2003 AADT	2002 AADT	2001 AADT	2000 AADT	1999 AADT	1998 AADT	1997 AADT	1996 AADT	1995 AADT	1993 AADT	1992 AADT	1991 AADT	1990 AADT	1989 AADT	1987 AADT	1986 AADT	1985 AADT	1983 AADT	1981 AADT
Berwick, @ S Berwick TL				5,930		5,760		5,470		5,860		4,520	4,530	4,380	4,450	4,540	4,120	4,030		3,780	3,500	2,655
South Berwick, NW/O Main St		5980			5,540		5,590			5,180		6,960										
South Berwick, N/O SR 4 (Portland St)	10790				10,410		11,010			11,670								7,400				
South Berwick, SR 4/236 N/O SR 236	20030						18,990			18,880								14,250				
South Berwick, SE/O Vine St	14900		14150		14,730				11,960			10,470										6,165
South Berwick, NW/O SR 91	16320		14570	14,920	15,910	15,310	15,100	13,260		12,220		11,160	11,460		10,420	10,760	10,880	10,330		9,070	7,675	6,300
South Berwick, SW/O Fifes Ln		12980			13,760		12,780			10,080		8,890		8,710		8,900		8,350				5,098
Eliot, NE/O SR 101	12710	12290			13,910		12,030			9,750		8,620		8,290		7,740	8,600	8,700				5,319
Eliot, SW/O SR 101	16300	15330		15,140	16,650	15,960	15,160	13,950		12,610		12,110	12,810				11,480		10,090	10,275	8,445	7,056
Eliot, SE/O SR 103		14930			15,520		13,760			12,000				10,020		11,650						6,744
Eliot, SE/O Depot Rd	14980	15360			16,170		14,780	15,080		13,400								11,660				7,495
Eliot, NW/O Beech Rd	16630					16,600		15,640		13,860		12,810	13,180		12,400		12,690	12,260	11,120	11,235	8,915	7,365
Eliot, NW/O Bolt Hill Rd	18370	16930			18,380	17,700												12,060				7,832
Eliot, SE/O Bolt Hill Rd	17830	17700			18,140	17,680	16,840			15,270		14,280		13,230				13,080				
Kittery, NW/O Martin Rd	18710						17,980			16,770		14,680		13,900		15,300		13,760				9,409
Kittery, SE/O Stevenson Rd	17770	18500			19,900		18,020		16,290	16,830				15,060		15,310		13,650	13,490			9,742
Kittery, NW/O Traffic Circle		19900		19,800	19,540		19,570			18,730		17,150		16,620		19,500		18,930				12,365

B. Existing Conditions Inventory

1. Roadway Geometrics

The existing physical characteristics of the corridor help to define the potential and the limitations of the existing roadway. The ability of the corridor to operate as a highway is largely controlled by the physical setting.

Appendix III presents a segment-by-segment inventory of existing roadway geometric and operating conditions for the Route 236 Corridor Study area. The following elements are included in the appendix:

- Begin and end node descriptions
- Begin and end node numbers
- Begin and end miles along the corridor
- Segment length (miles)
- Posted speeds
- Shoulder type and width
- Number of lanes
- Number of through lanes and widths
- Number of right and left turning lanes and widths
- Pavement condition rating

Table II-3 shows the historical full-construction projects along the Study Area. In general, Route 236 is a two-lane highway in rural areas and three or four lanes in the urban sections. Route 236 was built as a faster, more direct alternative to Route 103. The majority of the roadway is relatively straight and flat because it was built it on an abandoned railroad line. The old railroad line veers off Route 236 by Route 91 and is now occupied by power and gas lines.

The original roadway projects in Eliot and South Berwick were constructed in the mid 1950's. These projects were built with 11 or 12 foot width travel lanes and 6 or 8 foot shoulders. Intersection improvements occurred at Beech Road in 1989 and Route 101 in 1992. The latest widening in the Main Street area in South Berwick was in 1997. Overlay projects were not included in Table II-3 but the latest overlay project was finished in early 2006.

Table II-3: Historical Roadway Construction Projects

Project No	Location		Const. Date	Travel Lanes Width (ft)	Shoulder Width (ft)	Length (Miles)
	From	To				
I-95-1(5)0	Exit 3 Area Route 1B Ramps	Dana Road in Kittery	**1970**	2-26 Feet (20" Gravel Base)	10 Feet Shoulder Variable Median (20" Gravel Base)	0.53
F.A.S.-0(100)5	Dana Road in Kittery	0.69 miles s/o S. Berwick Town Line (Rte. 101)	**1957**	22 Feet (18" Gravel Base)	6 Feet (18" Gravel Base)	6.058
HES-03-1(5)	0.36 miles s/o Beech Road	0.227 miles n/o Beech Road	1989	2-24 feet (22" Gravel Base)	4 feet Shoulder 16 feet Median (28.5" Gravel Base)	0.587
F.A.S-0100(3)	0.69 miles s/o S. Berwick Town Line (Rte. 101)	Route 4 in South Berwick	**1956**	22 & 24 Feet (18" Gravel Base)	6 & 8 Feet (18" Gravel Base)	4.645
F-003P(6)	0.133 miles s/o Route.101	0.075 miles n/o Route 101	1992	Auxiliary Lanes		0.208
105(502)	Liberty St in South Berwick	Webster St. in South Berwick	**1964**	12 Feet (24" Gravel Base)	8 Feet (24" Gravel Base)	0.658
F-STP-004P(31)E	Route 236	Young St	**1997**	Variable Width (24" Gravel Base)	Variable Width (24" Gravel Base)	0.328

2. Pavement Conditions

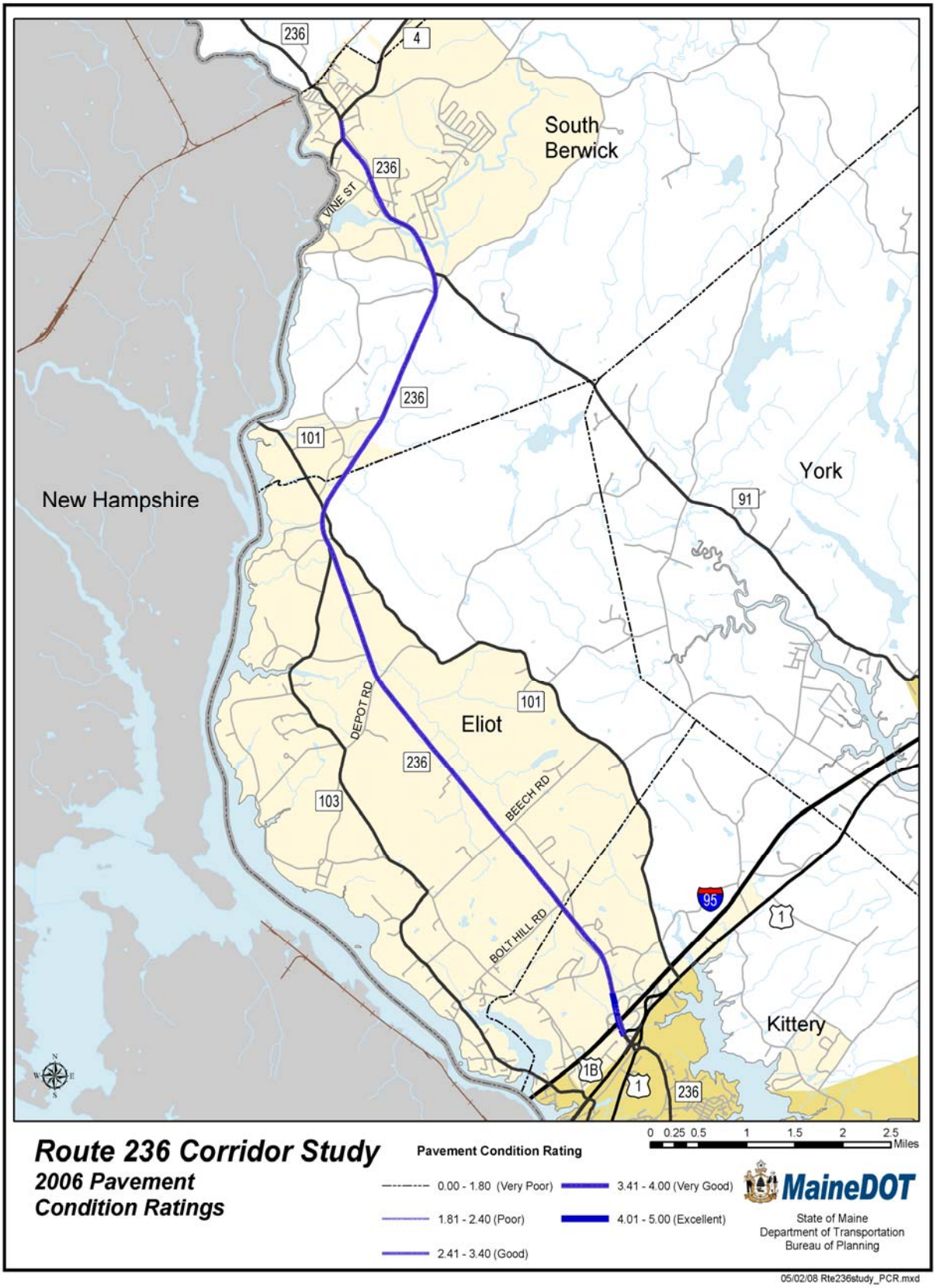
The Pavement Condition Rating (PCR) is an evaluation of distresses in pavement (such as cracking and wheel path rutting). PCRs will always range from 5 for a newly paved roadway to 0 for a road that is completely deteriorated. It is generally most cost-effective to resurface a road before the PCR drops below a rating of 3. PCRs do not account for base material, shoulders, drainage or longitudinal profile (ride).

Listed below are descriptions for different PCR:

- PCR 5.0 – Excellent. New or nearly new pavements. Free of cracks, patches, or rutting.
- PCR 4.0 - Good to Excellent. Pavement exhibiting few, if any, visible signs of surface deterioration.
- PCR 3.3 – Good. Evidence of initial deterioration including hairline cracks and minor rutting.
- PCR 2.4 – Fair to Poor. Visible defects including moderate cracking, distortion, and rutting. Some patching may now be present.
- PCR 1.2 – Poor. Extremely deteriorated pavements. Defects include severe cracking, distortion, and rutting. Very extensive patching.
- PCR 0.8 – Very Poor. Pavement is completely deteriorated. No structural integrity. No salvage value.

The PCR of each segment for the latest year (2007) is shown in Appendix III and displayed graphically in Figure II-3. The latest overlay project began in the interchange area and ended at Maine Street in South Berwick. The PCR for the study area is very good to excellent.

Figure II-3 Pavement Condition Rating



3. Roadway System

Route 236 within the Study Area has two different Federal Functional Classifications: "Principal Arterial" and "Minor Arterial". Arterials are the highest class of roadway, with their primary function being the movement of through traffic. The portion of Route 236 from the rotary to the I-95 interchange ramps is classified as Principal Arterial, in part, because this portion is a segment of the STRAHNET (Strategic Highway Network) System and the National Highway System. The balance of the Study Area, from the I-95 interchange ramps to Route 4 (Portland Street) is classified as Minor Arterial. Minor Arterials carry more localized traffic than Principal Arterials.

4. Safety

Crash data for the years 2003 through 2005 were used to identify high crash locations (HCLs) in the Study Area. A HCL is a location that has eight (8) or more reported traffic crashes and a Critical Rate Factor (CRF) greater than 1.00 in a three-year period. A highway location with a CRF greater than 1.00 has a frequency of crashes that is significantly greater than the statewide average for similar locations.

During this time period there were 1,054 HCLs statewide, including 143 HCLs in York County. Based on the results of the crash research, seven locations within the Study Area meet the criteria for placement on MaineDOT's list of HCLs. Collision diagrams were prepared for these locations to determine if there are any crash patterns or trends evident that may indicate correctable roadway/intersection deficiencies. These diagrams are provided in Appendix IV. Table II-4 summarizes the high crash location, the number of crashes, injury type and the CRF for the Study Area HCLs.

Table II-4: High Crash Locations

Location	Total Crashes	Injury Type					Percent Injury	CRF
		K	A	B	C	PD		
Kittery – Exit 2 N.B. Off-Ramp	11	0	0	0	3	8	27.3	2.48
Eliot – Bolt Hill Rd.	9	0	0	2	2	5	44.4	1.53
Eliot – Route 101	24	0	0	0	6	18	25.0	1.15
S. Berwick – Route 91	11	0	0	1	2	8	27.3	2.10
S. Berwick – Quarry Dr.	10	0	0	1	4	5	50.0	1.87
S. Berwick – Vine St.	9	0	0	1	3	5	44.4	1.12
S. Berwick – Route 4 (Portland St.)	10	0	1	0	2	7	30.0	1.50

Note: Injury Type: K=fatality A=incapacitating B= non-incapacitating C= possible injury PD= no injuries (property damage only)

The following paragraphs summarize the results of the crash research.

Route 236 South at Exit 2 N.B. Off-Ramp

Eleven crashes occurred at the intersection of Route 236 and the Exit 2 northbound off-ramp in Kittery between 2003 and 2005. Ten of the eleven are rear-end type crashes at the yield sign. In most of these crashes, people had started and then stopped and the driver in the vehicle behind did not realize they had stopped. The remaining crash was an angle collision that involved a vehicle going through the yield sign and continuing over the median into the Route 236 northbound travel lane.

Route 236 at Bolt Hill Road

Nine crashes occurred at the intersection of Route 236 and Bolt Hill Road in Eliot between 2003 and 2005. There were five rear-end type crashes; this is a result of people turning or trying to turn into Bolt Hill Road. There were two angle type crashes exiting Bolt Hill Road from the west. One crash involved a mattress falling out of the back of the truck and a vehicle in the opposite direction hitting it. The last crash involved a truck driver trying to reverse direction by using a driveway (Morgridge Construction) by the intersection and striking a utility pole in the process.

Route 236 at Route 101

Twenty four crashes occurred at the signalized intersection of Route 236 and Route 101 in Eliot between 2003 and 2005. Fourteen crashes were rear-end type, all at the stop bar except one which involved a right turn into the Muddy River Steak House driveway. Four crashes resulted from left-turn vehicles being struck by through traffic: two left-turn vehicles heading southbound on Rte 236 and one from each direction on Rte.101. Two angle crashes resulted when drivers on Rte 101 disregarded the red traffic signal. There were four miscellaneous crashes: one involving a snow plow clearing the intersection (backing up), a truck turning too sharply and striking a utility pole, a vehicle striking the median island and sign, and a vehicle turning into the Steak House and sideswiping another vehicle as it entered.

Route 236 at Route 91

Eleven crashes occurred at the intersection of Route 236 and Route 91 in South Berwick between 2003 and 2005. There were five rear-end type crashes: two were at the stop sign on Rte 91, one involved a driver waiting to turn left into Old South Road, one involving a vehicle exiting Rte 91 and one rear-end from a vehicle sliding under snowy conditions. There were six angle type crashes: four exiting Rte 91 (one was distracted and ran the stop sign) and two were heading southbound on Rte 236 and turning left into Rte 91. Eight of the eleven crashes occurred between 3 PM and 6PM and on dry road conditions.

Route 236 at Quarry Drive

Ten crashes occurred at the intersection of Route 236 and Quarry Drive in South Berwick between 2003 and 2005. There were three rear-end type crashes: two of these involved drivers waiting to turn left into Quarry Drive and one at the stop sign on Quarry Drive. There were five

angle type crashes: four turning left and one turning right out of Quarry Drive. There were two miscellaneous type crashes: one involved an attempted U-turn using Quarry Drive and the other involved a driver that was distracted and hit a tree.

Route 236 at Vine St

Nine crashes occurred at the intersection of Route 236 and Vine Street in South Berwick between 2003 and 2005. There were three rear-end type crashes: two of these involved drivers waiting to turn left into Vine Street (one from each direction) and one was a three-car rear-end when late afternoon traffic stopped suddenly. There was one crash where the driver avoided rear-ending a left-turning vehicle but went into a ditch. There were four angle type crashes: two involved vehicles exiting out of Academy Street side, one exiting out of Vine Street and one heading southbound on Rte 236 and turning left into the Academy Street side. The last crash involved a vehicle turning into Academy Street from Route 236 and striking a vehicle waiting to turn onto Route 236.

Route 236 at Route 4 (Portland Street)

Ten crashes occurred at the intersection of Route 236 and Portland Street in South Berwick between 2003 and 2005. There were five rear-end type crashes: four of these were on Portland Street and one was heading southbound on Main Street. There were two angle type crashes, both involving vehicles exiting Portland Street and heading southbound on Route 236. Both angle crashes occurred in the evening (5:40 PM and 7:25 PM), with one on a Sunday and the other on the Fourth of July. There were two crashes involving parked vehicles. The last crash involved a vehicle exiting the Mobil Station and being struck by an eastbound vehicle.

The crash rate is determined by dividing the number of crashes in a study period by the amount of travel (in units of 100 million vehicle-miles). Crash rates on Route 236 were compared with overall crash rates statewide and for other Minor Arterials statewide.

Table II-5 represents the combined (links and nodes) fatal crash rate for the three-year study period from 2003 through 2005. There were no fatal crashes in the study area between 2003 and 2005. The fatal crash rate for the Route 236 Study Area was 0.00, compared to the 1.08 for two-lane Minor Arterials statewide.

Table II-5: Fatal Crash Comparison

	2003	2004	2005	2003-2005 Crash Rate
Total Fatal Crashes Statewide	**184**	**176**	**152**	**1.13**
Total Fatal Crashes on Two-Lane Minor Arterials	**34**	**35**	**25**	**1.08**
Total Fatal Crashes on Route 236 Study Area	**0**	**0**	**0**	**0.00**

For the general crash rate comparison, the Study Area was divided into four sections based on road classification, road type and the number of lanes and signalized intersections. Crash rates for the period 2003 through 2005 are shown in Table II-6 for combined roadway segments (links and nodes) for the Study Area and compared to the statewide average for the same classes of roadway.

For Principal Arterial four-lane divided urban roadway segments, the Study Area has a higher crash rate than the statewide crash rate. The Study Area segment is the four-lane section (both northbound and southbound on Rte 236) east of I-95. The segment has a crash rate of 566.0 compared to the statewide three-year average of 286.6. The crash rate is higher for this segment is because of the HCL at the intersection of the Exit 2 northbound off-ramp and Route 236 southbound. All of the crashes on this segment occurred at the intersection (node). For all other classes of roadway in the Route 236 Study Area, the crash rate was equal to or less than the statewide crash rate.

Table II-6: Crash Rate Comparison (Links and Nodes- crashes per 100 million vehicle-miles)

Location	Classification	Type	2003-2005 Statewide Crash Rate	2003-2005 Study Area Crash Rate
East Side of I-95 Interchange	Principal Arterial	**Four-Lane** Urban	**286.6**	**566.0**
West Side of I-95 to Dana Dr.	Principal Arterial	**Four-Lane** Rural	**198.2**	**195.4**
Dana Dr. to Rte 91	Minor Arterial	Two-Lane Rural	**166.7**	**123.5**
Rte 91 to Rte 4 (Portland St)	Minor Arterial	Two-Lane Urban	**348.8**	**275.5**
Signalized Intersection (3)	Signals	Signals	**0.65**	**0.64**

Note: The highlighted areas are the locations where the crash rate is higher in the Study Area than the statewide average.

Table II-7 shows crash types for the Study Area compared to the statewide averages for the same three-year period. Route 236 had a higher than statewide average for the following crash types: rear-end/sideswipe, intersection movement, sled/bike, all other animals, and other crashes. However, only the rear-end/sideswipe and intersection movement types occurred in large numbers.

Table II-7: Crash Type Comparison

Crash Type	Statewide 2003-2005 Total	Statewide Percent of Total %	Route 236 2003-2005 Total	Route 236 Percent of Total %
Object in Road	2,609	2.49%	9	2.59%
Run Off Road	27,471	26.25%	36	10.37%
Rear End / Sideswipe	33,583	32.09%	158	45.53%
Head On / Sideswipe	3,477	3.32%	10	2.88%
Intersection Movement	21,015	20.08%	96	27.67%
Pedestrians	746	0.71%	1	0.29%
Sled / Bike	566	0.54%	2	0.58%
Train	12	0.01%	0	0.00%
All Other Animals	420	0.40%	2	0.58%
Deer	9,406	8.99%	25	7.20%
Moose	1,976	1.89%	0	0.00%
Bear	72	0.07%	0	0.00%
Non Collision	1,360	1.30%	1	0.29%
Other	1,950	1.86%	7	2.02%
Unknown	0	0.00%	0	0.00%
Total	**104,663**	**100.00%**	**347**	**100.00%**

Note: The highlighted area is where the percent of crash type in the Study Area (3-year) is greater than the statewide (3-year) crash type.

The percentage (45.53%) of rear-end/sideswipe crashes in the Study Area is greater than the statewide (32.09%) percentage. Of the 158 rear-end/sideswipe crashes, 58 occurred on straight road, five on curved road, eight at driveways and 87 at intersections or interchanges. It is common for rear-end crashes to occur at intersections, especially signalized intersections. Many of the 58 straight road crashes occurred because of stopped, slowing or turning traffic. Some of the crashes occurred during the 2005 overlay project.

The percentage (27.67) of intersection movement crashes in the Study Area is also higher than the statewide (20.08) percentage. Out of a total of 96 crashes, 75 occurred at intersections and interchanges and 21 occurred at driveways.

The remaining crash types sled/bike, other animals and other are slightly above the statewide percentage, but are very few in number.

The percentage (10.37%) of run off road crashes is much less than the statewide percentage (26.25%), however they do make up 10% of the total crashes. The lower percentage can be attributed to the straight and flat alignment of Route 236 and its modern design (12-foot lanes with 8-foot paved shoulders). Of the total 36 run off road crashes, 24 crashes occurred on straight road, three on curved road, one at a driveway, and the remaining at intersections and interchanges.

Table II-8 shows Contributing Human Factors for the Study Area compared to the statewide averages for the same 3 year period. The total number in Table II-8 is greater than the total number of crashes in Table II-7 because the crash factor table includes factors for each driver in a multi-vehicular crash.

Table II-8: Contributing Crash Factor Comparison

Human Factors	Statewide 2001-2003 Total	Statewide Percent of Total %	Route 236 2003-2005 Total	Route 236 Percent of Total %
No Improper Driving	75,599	46.65%	306	49.28%
Failure to Yield R/W	13,234	8.17%	51	8.21%
Illegal Unsafe Speed	16,853	10.40%	8	1.29%
Follow Too Close	8,248	5.09%	21	3.38%
Disregard Traffic	2,197	1.36%	9	1.45%
Driving Left of Center	940	0.58%	4	0.64%
Improper Passing	1,768	1.09%	2	0.32%
Improper Lane Change	1,673	1.03%	7	1.13%
Improper Start/Stop	601	0.37%	1	0.16%
Improper Turn	1,683	1.04%	11	1.77%
Unsafe Backing	2,284	1.41%	1	0.16%
No Proper Signal	471	0.29%	1	0.16%
Impeding Traffic	279	0.17%	5	0.81%
Driver Inattention	25,020	15.44%	156	25.12%
Driver Inexperience	2,415	1.49%	10	1.61%
Pedestrian Violation	293	0.18%	0	0.00%
Physical Impairment	2,186	1.35%	9	1.45%
Vision Obscured Glass	184	0.11%	1	0.16%
Vision Obscured Light	884	0.55%	2	0.32%
Vision Obscured Other	1,480	0.91%	6	0.97%
Other Human Factor	3,310	2.04%	10	1.61%
Hit & Run	454	0.28%	0	0.00%
Total	**162,056**	**100.00%**	**621**	**100.00%**

Note: The highlighted area is where the percent of contributing crash factors in the Study Area (3 year) is greater than the statewide (3 year) crash type.

No improper driving was a contributing factor in 49.28% of the Study Area crashes; this is very close to the statewide average of 46.65%. Illegal unsafe speed was a contributing factor in only 1.29% of the Study Area crashes compared to a much higher statewide average of 10.40%. This is most likely due to police enforcement and heavy traffic volumes. For the Study Area, driver inattention was listed as a contributing factor for 25.12% of the crashes which is substantially higher than the statewide average of 15.44%. Intersection and rear end crashes are the dominant type of crashes, and the contributing factors for those types would be more likely to be driver inattention than illegal unsafe speed.

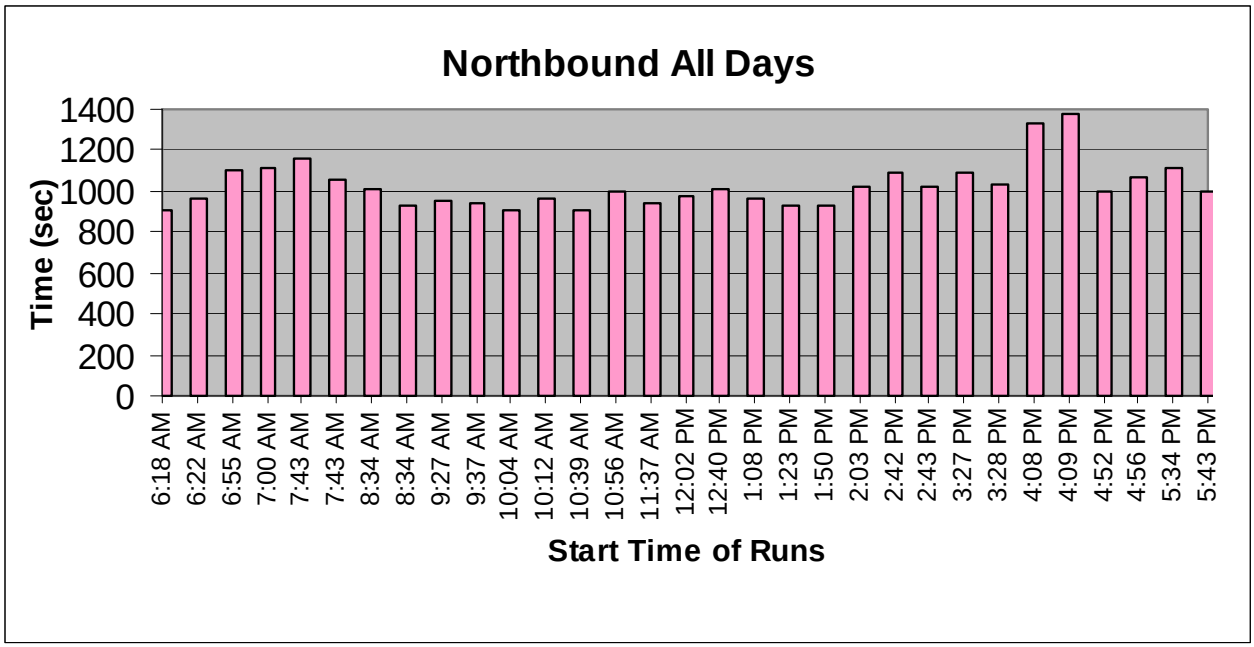
C. Mobility and Operating Conditions

1. Travel Speeds

Travel time studies were conducted on May 31, June 1, and June 2, 2006 from the Kittery rotary to Route 4 / Agamenticus Road in South Berwick to measure actual travel speeds and locate areas where travel delays are occurring. Thirty-one speed and delay runs were made between 6:00 am and 6:00 pm in both the northbound and southbound directions.

As shown in Figure II-4, for the northbound direction, travel times for the 11.33 mile section range from 15 minutes and 05 seconds (10:04 am) to 22 minutes and 52 seconds (4:09 pm). There appear to be both AM and PM peaks but the longest travel times were in the PM.

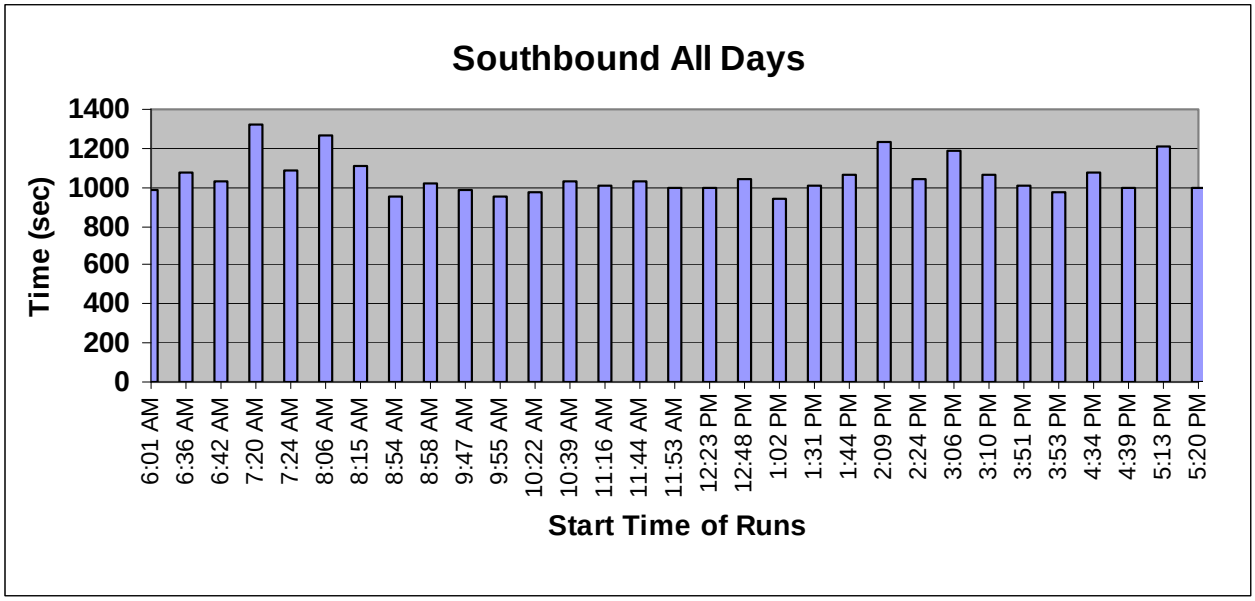
Figure II-4: Northbound Travel Times



As shown in Figure II-5, for the southbound direction, travel times for the 11.33 mile section range from 15 minutes and 41 seconds (1:02 pm) to 22 minutes and 04 seconds (7:20 am). There appear to be both AM and PM peaks, but a longest travel times occur in the AM.

There were more travel times over 20 minutes in the southbound direction than in the northbound direction. One explanation for this is that the Route 236 intersection at Portland Street in South Berwick allows northbound traffic to turn right onto Portland Street without stopping or yielding, but stops left-turning southbound traffic from Portland St.

Figure II-5: Southbound Travel Times



Comparisons of AM peak, PM peak and overall average travel speeds (ATS) with the posted speeds, are shown in Figures II-6, II-7, II-8 and II-9. (See Appendix V for summary of average travel speed from speed and delay runs.) According to the *2000 Highway Capacity Manual* (HCM2000), the ATS is the length of the highway segment divided by the average travel time of all vehicles traversing the segment, including all stopped delay times.

As a whole, the overall average travel speed is slightly above or below the posted speed except in areas approaching signalized intersections, 15 mph school zones, and in the village area of South Berwick. For example, on the approach to the signal at Depot Road between the 15 mph speed zone signs (Point M) and Depot St (point N), the overall average travel speed is 27.1 mph in a 45 mph Speed Zone. This would be expected because the average travel speed includes the time that vehicles are stopped for the signal. The other location where the average travel speed is much lower than the posted speed is in South Berwick between Points EE and GG. For Southbound traffic, the average travel speed is 16.0 mph to 16.3 mph in a 25 mph zone.

The AM peak is the average of the runs from 7:00 AM to 9:00 AM. In most locations the southbound speed in the AM peak is slower than the PM peak southbound speeds, but in between Depot Road and Bolt Hill Road the AM peak speed is slightly higher. A higher volume of traffic is heading southbound in the AM, and northbound in the PM. This is discussed in more detail in the section on hourly speed variations. One value of note in the northbound direction in the AM is between Point O and Point P where the ATS is 31.0 mph in a 45 mph speed zone. Closer review of this information showed the delays to be caused by school buses picking up students.

The PM peak is the average of runs from 3:30 PM to 5:30 PM. The PM peak ATS from the 45 mph speed zone change and Depot Road in Eliot is only 31.3 and 32.3 mph in a 45 mph zone. There are long northbound queues from Depot Road that back up approximately three quarters of a mile in the PM peak.

Maximum observed delay times from the speed and delay study at signalized and unsignalized intersections are shown in Table II-9.

Table II-9: Maximum Delay at Intersections

Location	Delay (seconds/vehicle)	Time	Direction
Martin/Stevenson Rd	77	4:09 PM	Northbound
Beech St.	44	12:02 PM	Northbound
Depot Rd.	185	4:08 PM	Northbound
Route 101	57	5:13 PM	Northbound
Route 236/Main St	168	4:09 PM	Northbound
Route 236/Portland St (No Police)	445	5:20 PM	Southbound
Route 236/Portland St (Police)	292	8:06 PM	Southbound

Figure II-6: Kittery-Eliot Average Travel Speed

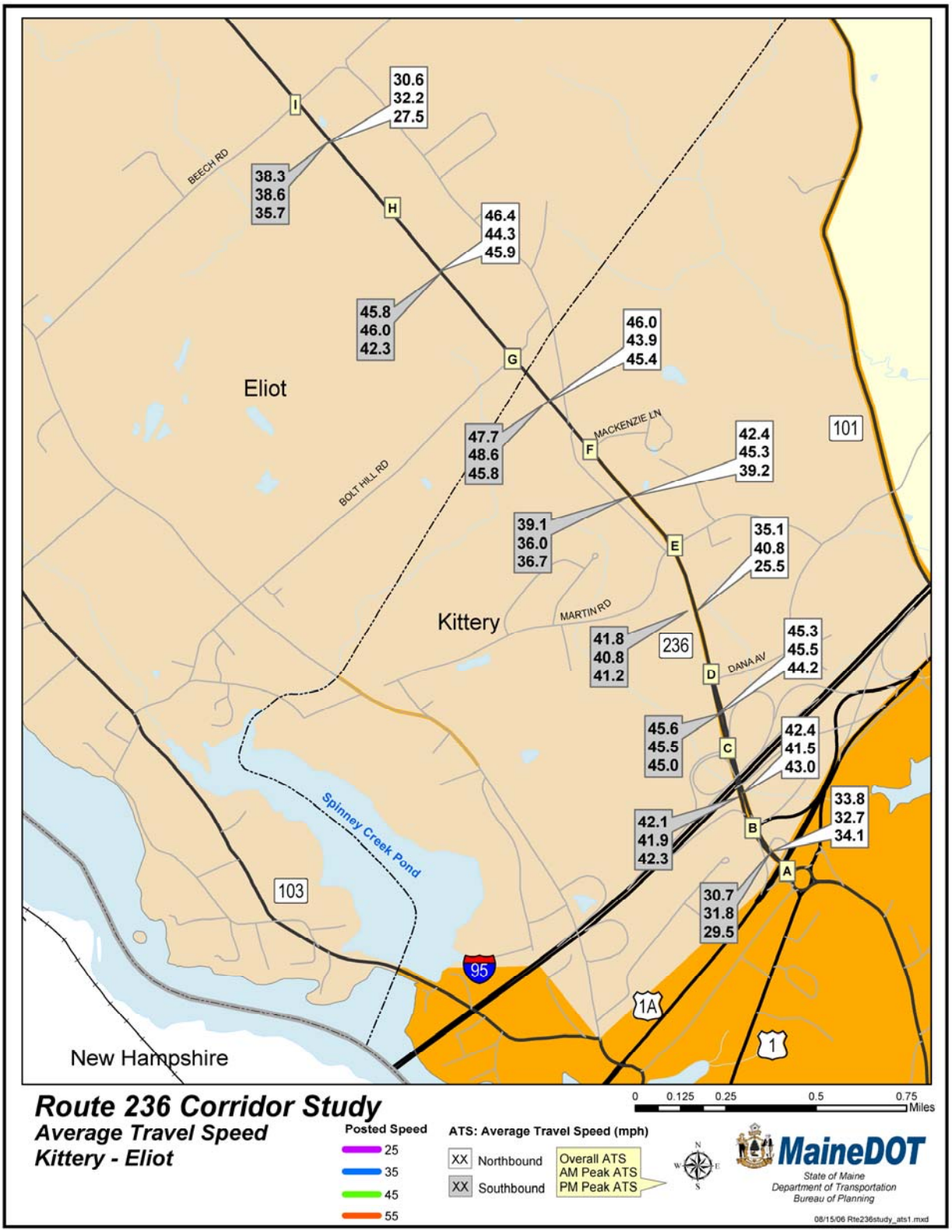


Figure II-7: Eliot Average Travel Speed

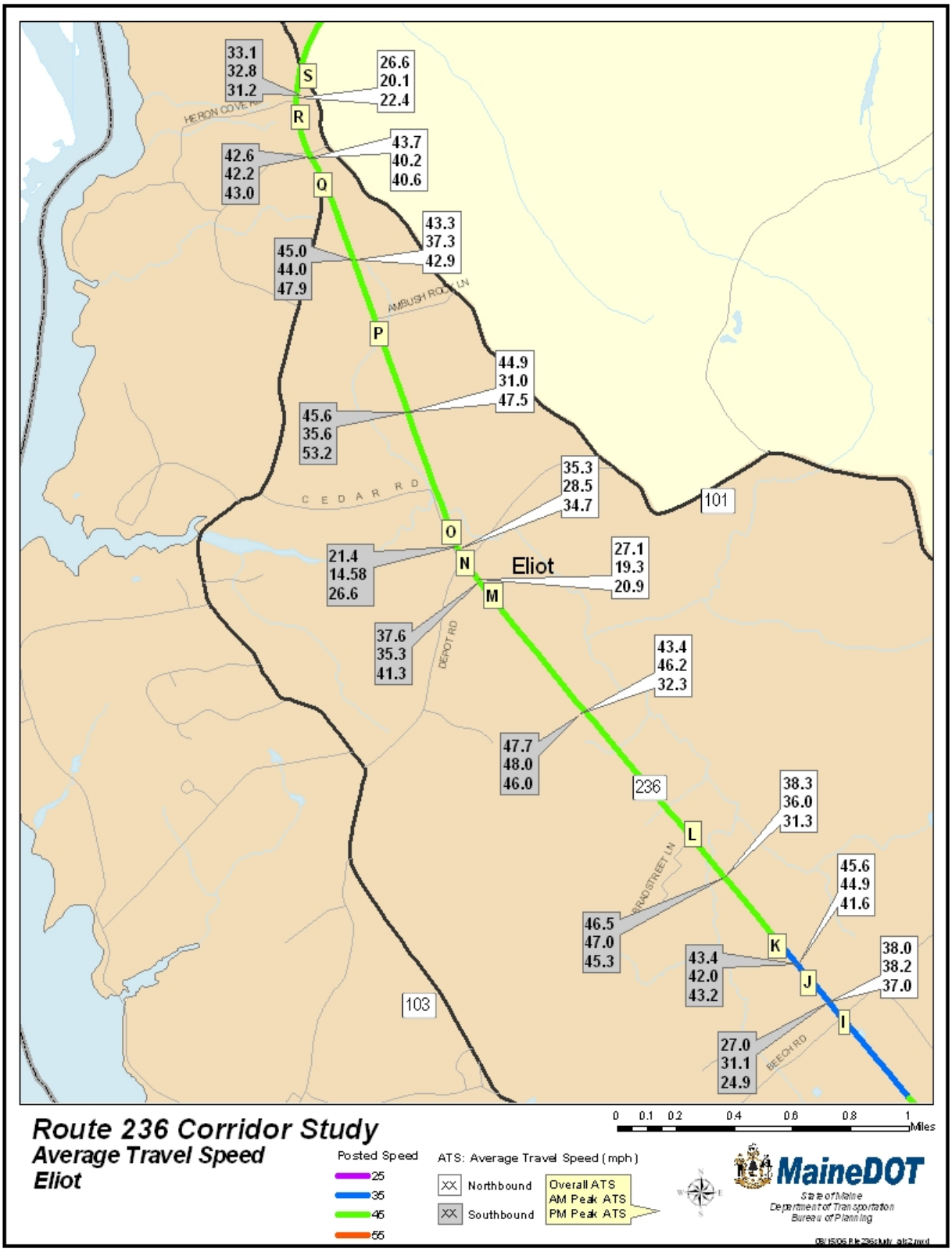


Figure II-8: Eliot-South Berwick Average Travel Speed

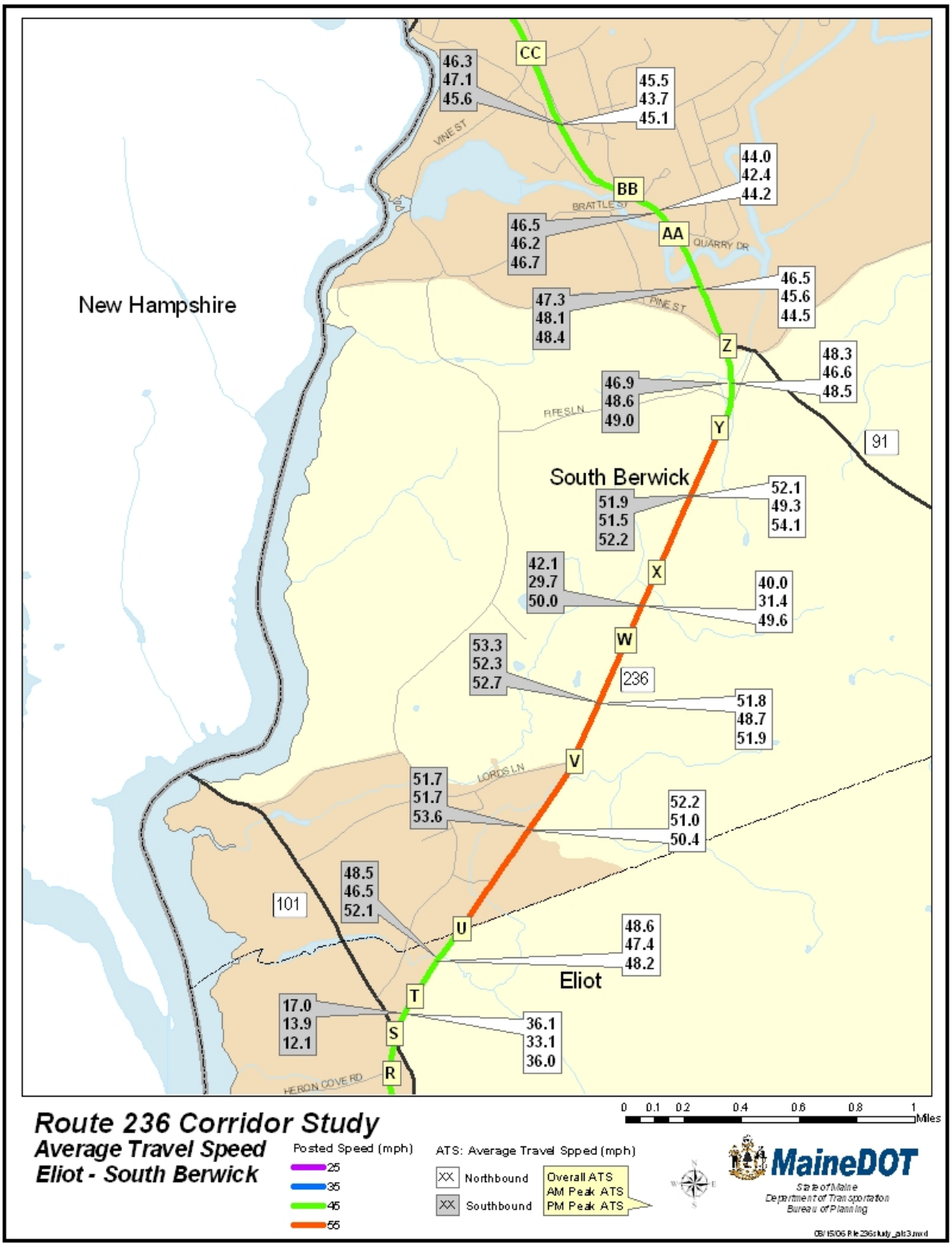
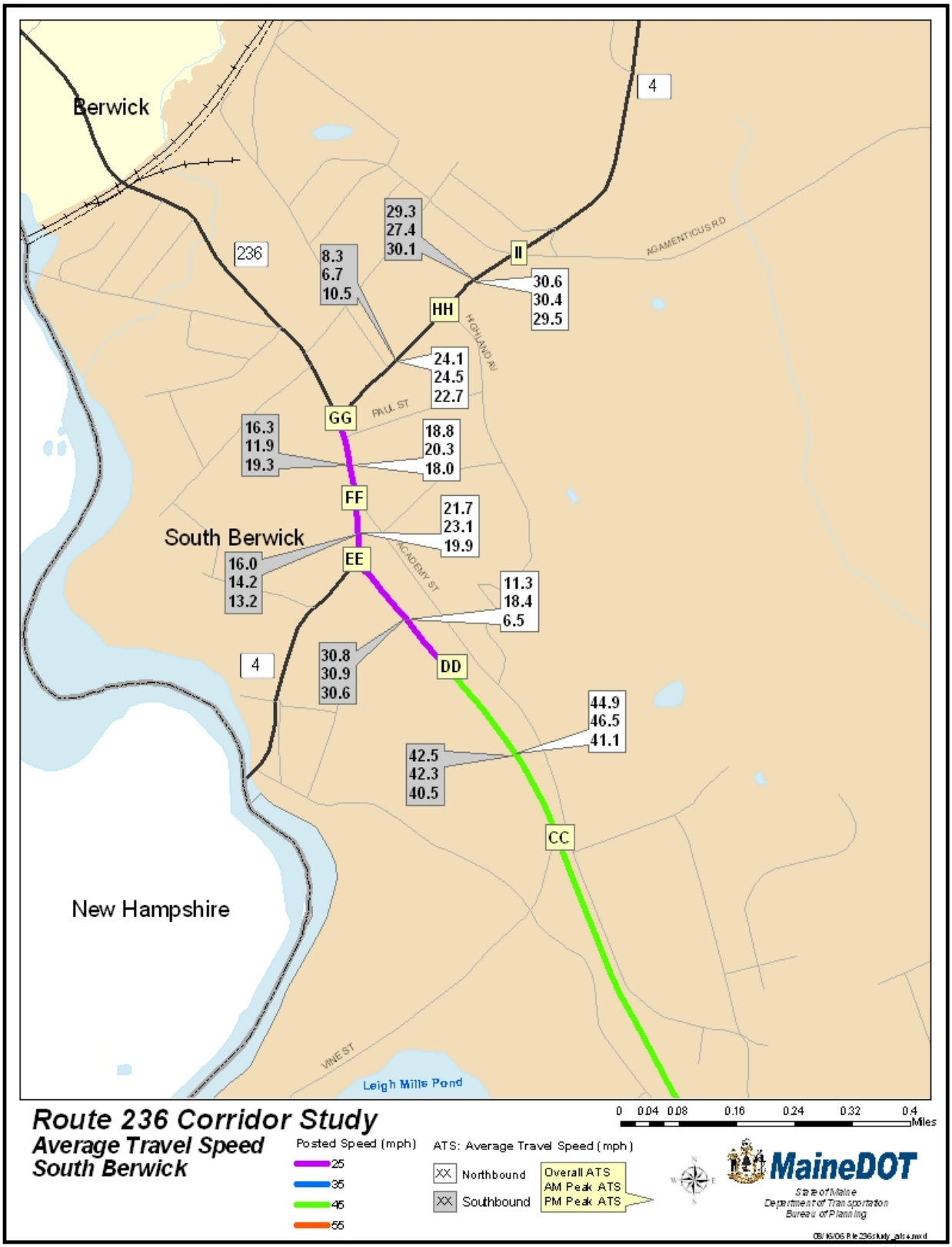


Figure II-9: South Berwick Average Travel Speed



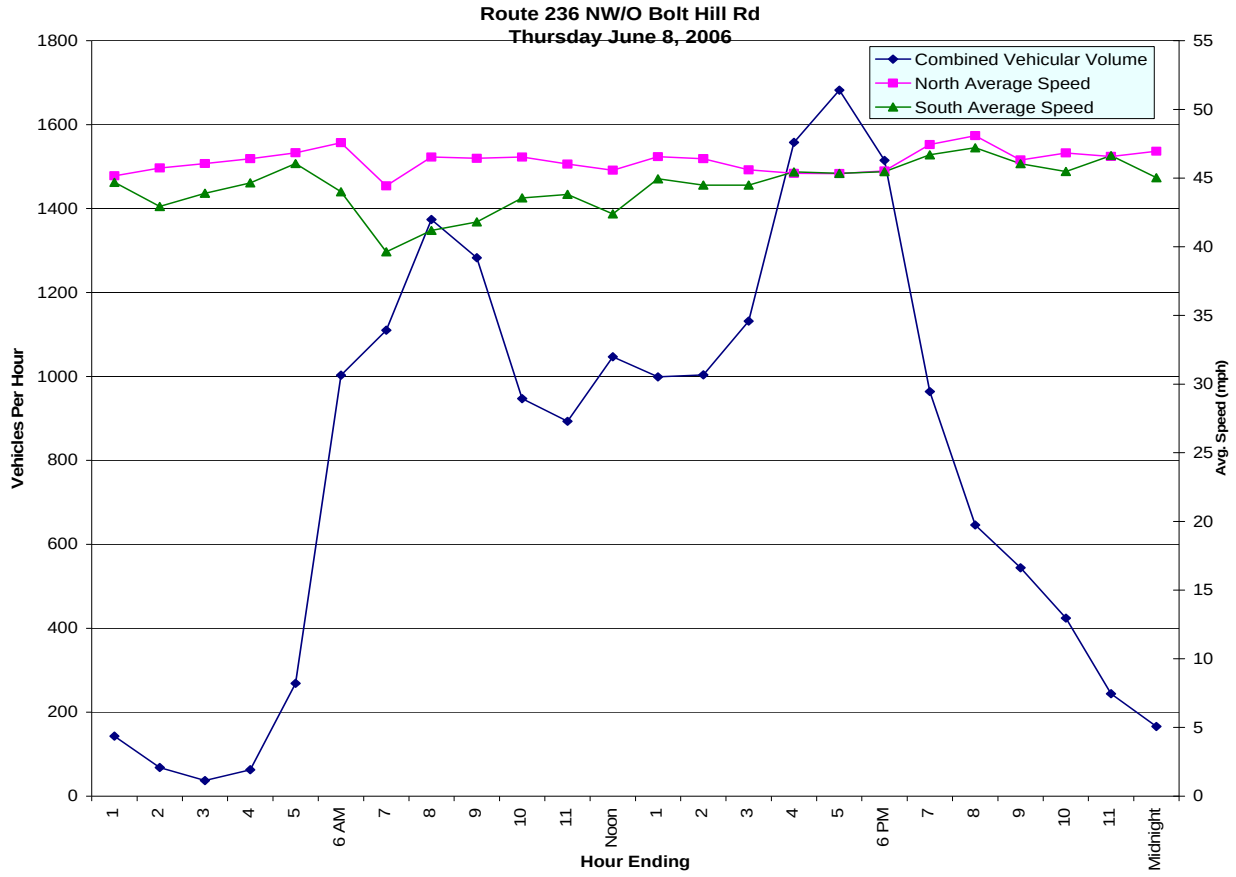
2. Hourly Speed Variation

Figure II-10 shows variation of average speed with time of day, along with combined hourly volume variations, over a 24–hour period for Route 236 north of Bolt Hill Road. The speed remains relatively constant despite significant changes in volume. At this particular location, the average speed in the northbound direction is higher than in the southbound direction. This difference may be due to the reduction of the speed limit (from 45 mph to 35 mph) and the roadside development in the area north of the data collection point. For the 9,106 northbound vehicles that passed the collection point over the 24 hours, the average speed was 46.3 mph. For the 10,009 southbound vehicles that passed the collection point over the 24 hours, the average speed was 44.4 mph. The hour from 6:00 am to 7:00 am shows a drop in speed for both northbound and southbound traffic. The average speed is the lowest for the northbound (44 mph) and for the southbound (40 mph) in the 24 hours. It is unknown as to why both directions had the lowest average speed in the same hour but perhaps there was police enforcement during that hour.

The hourly speed variation of traffic was also observed south of Depot Rd. in Eliot. Appendix I includes a figure for this site, similar to Figure II-10 for Bolt Hill Road. The average speeds south of Depot Road are higher (48 mph) than the speeds at location north of Bolt Hill Road.

Because the speed of vehicles varies little with change in volume on two-lane highways, average speed is not the sole measure of Level of Service (LOS) for this type of facility. The other factor in determining the LOS is percent time spent following (PTSF). PTSF represents the freedom to maneuver and the comfort and convenience of travel. It is the average percent of travel time that vehicles must travel in platoons behind slower vehicles due to the inability to pass. PTSF is difficult to measure in the field. However, the percentage of vehicles traveling with headways of less than 3 seconds can be used as a surrogate measure. Headway is the time in seconds between two successive vehicles as they pass a point on the roadway, measured from the same common feature of both vehicles (for example, the front axle or the front bumper). (See Appendix I for summary of Speed and Headway Data)

Figure II-10: Hourly Speed Variation (N/O Bolt Hill Road)



3. Hourly Headway Variation

Figures II-11 and II-12 show the variation in headway for both southbound and northbound traffic north of Bolt Hill Rd in Eliot. In these two figures, headway is broken down into four ranges. The first range, in red, has an upper value of 2 seconds and represents vehicles with headways less than the recommended "safe" driving distance given in the State of Maine Motorist Handbook and Study Guide. The second range, in orange, has an upper value of 3 seconds, which represents the current Highway Capacity Manual (HCM 2000) threshold for PTSF. The third range, in yellow, has an upper value of 5 seconds, which represents the 1985 HCM threshold for "percent time delay". The last range, in green, represents vehicles with headway greater than 5 seconds.

For southbound traffic, the time period that has the highest percentage of headway (84.2%) of less than 5 seconds is from 7:00 am to 8:00 am. This corresponds with the peak hour of south bound traffic in Figure II-2. The range of vehicles with less than the safe distance is from 0 % during early morning hours to a high of around 47 % (492 out of 1,048 vehicles) from 7:00 am to 8:00 am. The average percent for the 24 hour period of vehicles that travel less than the recommended safe distance between vehicles is around 23%. The highest percent of vehicular headway that is less than 3 seconds is 68.8% (719 out of 1,048 vehicles) and it is also from 7:00 am to 8:00 am.

For northbound traffic, the time period that has the highest percentage of headway (86.9%) of less than 5 seconds is from 4:00 pm to 5:00 pm. This corresponds with the peak hour of north bound traffic in Figure II-2. The range of vehicles with less than the safe distance is from 0 % during early morning hours to a high of around 47 % (490 out of 1,042 vehicles) from 5:00 pm to 6:00 pm. The average percentage for the 24 hour period of vehicles that travel less than the recommended safe distance between vehicles is around 23%. The highest percentage of vehicular headway that is less than 3 seconds is 72.2% (829 out of 1,042 vehicles), also from 4:00 to 5:00 pm.

Figure II-11: Hourly Headway Variation - Southbound

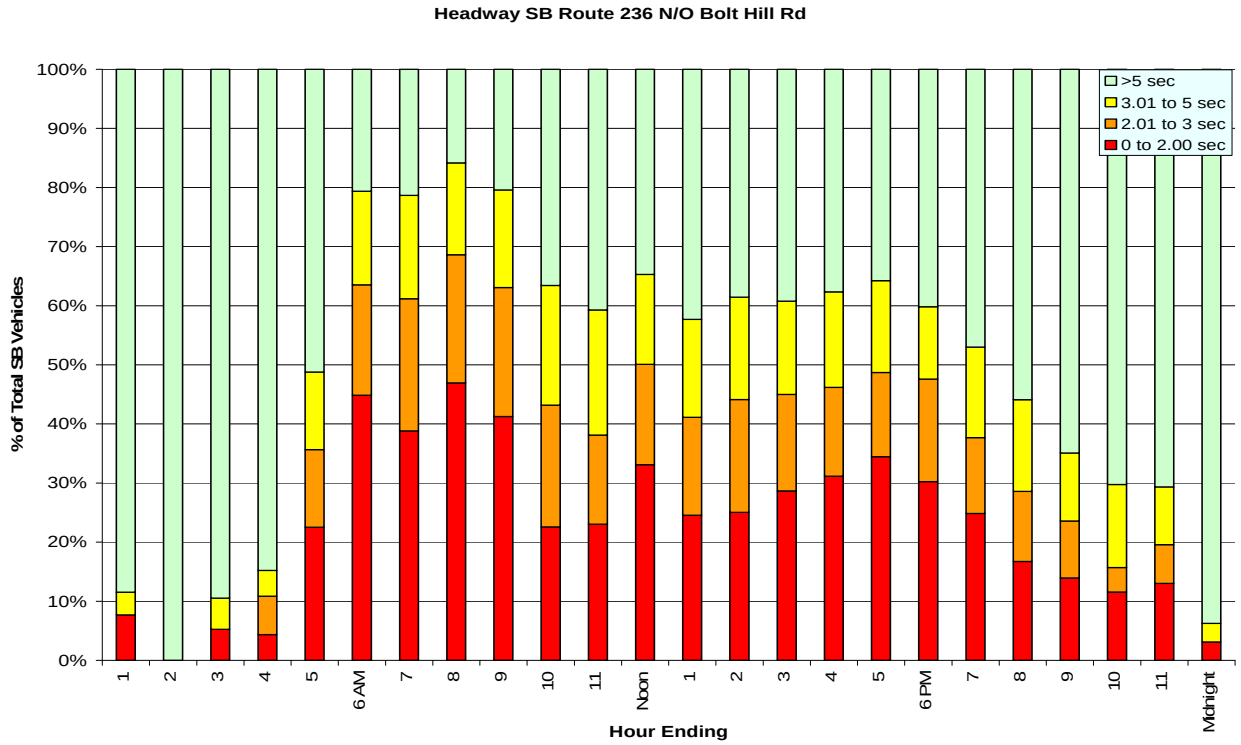
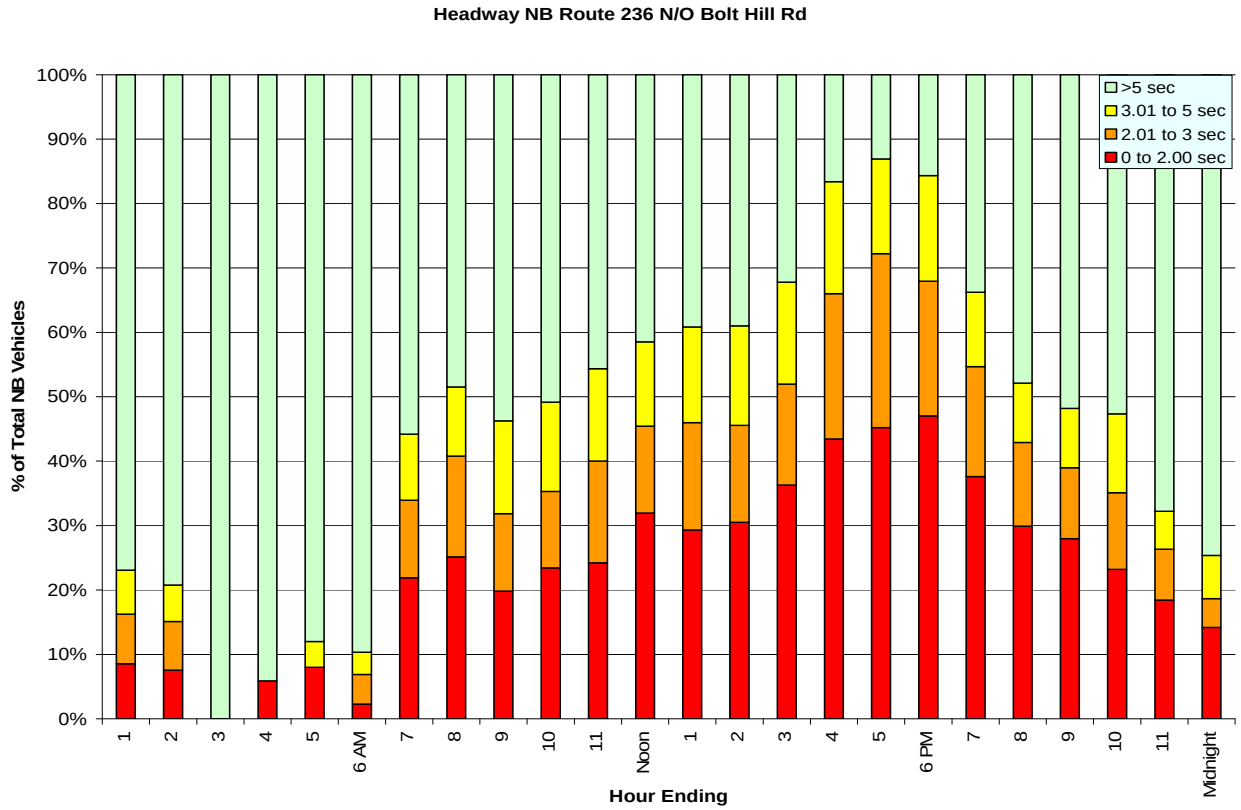


Figure II-12: Hourly Headway Variation - Nouthbound



4. Level of Service

A major element of this study is the evaluation of operating conditions along the corridor relative to existing and future traffic mobility. To assess mobility, capacity and level of service (LOS), analyses were conducted by using the Synchro/SimTraffic software package for intersections and urban roadway segments and the HCM 2000 for rural roadway segments.

Capacity is defined as the "maximum sustainable flow rate at which vehicles or persons reasonably can be expected to traverse a point or uniform segment of a lane or roadway during a specific time period under given roadway, geometric, traffic, environmental, and control conditions". Conditions or factors that affect capacity include the number of travel lanes, lane and shoulder width, lateral clearances, alignment, the characteristics of vehicles in the traffic stream, and traffic control and regulations in existence.

Level-of-service (LOS) is a qualitative measure describing operational conditions within a traffic stream taking into account a number of variables such as speed and travel time, vehicles maneuverability, traffic interruptions, comfort, and convenience. There are six levels of service defined in the manual ranging from LOS "A" to LOS "F", with LOS "A" representing the best operational condition and LOS "F" representing the worst. Each level of service represents a range of operating conditions and the driver's perception of those conditions.

a. Roadway

For analysis purposes, the HCM2000 classifies Route 236 roadway segments into the following two categories based on roadway type and function.

- Urban Streets (Class I, II, III, IV)
- Rural Two-Lane Highways (Class I and II)

The Urban Street Level of Service is based on travel speed, running time, and intersection control delay. These criteria were applied to a short section in Kittery and to one in South Berwick.

Table II-10: LOS Criteria for Urban Streets

Urban Street Class 1 (Kittery)		**Urban Street Class III (South Berwick)**	
Level of Service	Avg. Travel Speed (mph)	Level of Service	Avg. Travel Speed (mph)
A	>42	A	>30
B	>34-42	B	>24-30
C	>27-34	C	>18-24
D	>21-27	D	>14-18
E	>16-21	E	>10-14
F	<=16	F	<=10

For Rural Two Lane Highways (Class 1), LOS criteria are percent time-spent-following and average travel speed. These criteria were applied in all parts of the corridor not evaluated as

Urban Streets. Factors that affect the level of service include: lane and shoulder width, access point density, percentage of no-passing zones, base free flow speeds, peak hour factor, directional distribution and composition of traffic.

Table II-11 LOS Criteria for Two-Lane Highways (Class 1)

Level of Service	Percent Time-Spent Following	Avg. Travel Speed (mph)
A	<= 35	> 55
B	> 35-50	> 50-55
C	> 50-65	> 45-50
D	> 65-80	> 40-45
E	> 80	<= 40
F	Applies whenever the flow rate exceeds the segment capacity.	

The following describes the typical characteristics of the each level of service as applied to two-lane rural highways.

LOS A – Motorists are able to travel at their desired speed. Passing demand is well below passing capacity, and platoons of three or more vehicles are rare. Drivers are delayed no more than 35 percent of their travel time by slow moving vehicles. Maximum flow rate of 490 pc/hr in both directions.

LOS B – Characterizes traffic flow with speeds of 50 mph or slightly higher. The demand for passing to maintain desired speeds becomes significant and approximates the passing capacity at the lower boundary of LOS B. Drivers are delayed in platoons up to 50% of the time. Service flow rates of 780 pc/h total in both directions can be achieved. Above this flow rate the number of platoons increase dramatically.

LOS C describes further increase in flow, resulting in noticeable increases in platoon formation, platoon size, and frequency of passing impediments. The average speed still exceeds 45mph, even though unrestricted passing demand exceeds passing capacity. Although traffic flow is stable, it is susceptible to congestion due to turning traffic and slow-moving vehicles. PTSF may reach 65%. Service flow rates of up to1,190 pc/h in both directions.

LOS D describes unstable flow. The two opposing traffic streams begin to operate separately at higher volume levels, as passing becomes extremely difficult. Passing demand is high, but passing capacity approaches zero. Mean platoon sizes of 5 to 10 vehicles are common, although speeds of 40mph still can be maintained. The proportion of no-passing zones usually has little influence on passing. Turning vehicles and roadside distractions cause major shock waves in the traffic stream. Motorists are delayed in platoons for nearly 80% of their travel time. Maximum flow rates of 1,830 pc/h total in both directions.

LOS E traffic flow conditions have a PTSF greater than 80 percent. Passing is virtually impossible, and platooning becomes intense, as slower vehicles or other interruptions are encountered. The highest volume attainable under LOS E defines the capacity of the highway, generally 3,200 pc/h total in both directions.

LOS F represents heavily congested flow with traffic demand exceeding capacity.

In order to determine level of service, the Route 236 corridor was divided into seven sections for analysis purposes. The results of this analysis are summarized in Table II-12, which identifies each study segment and its associated level of service in the PM peak hours. The field data collected from the speed/delay runs was used in evaluating the existing conditions.

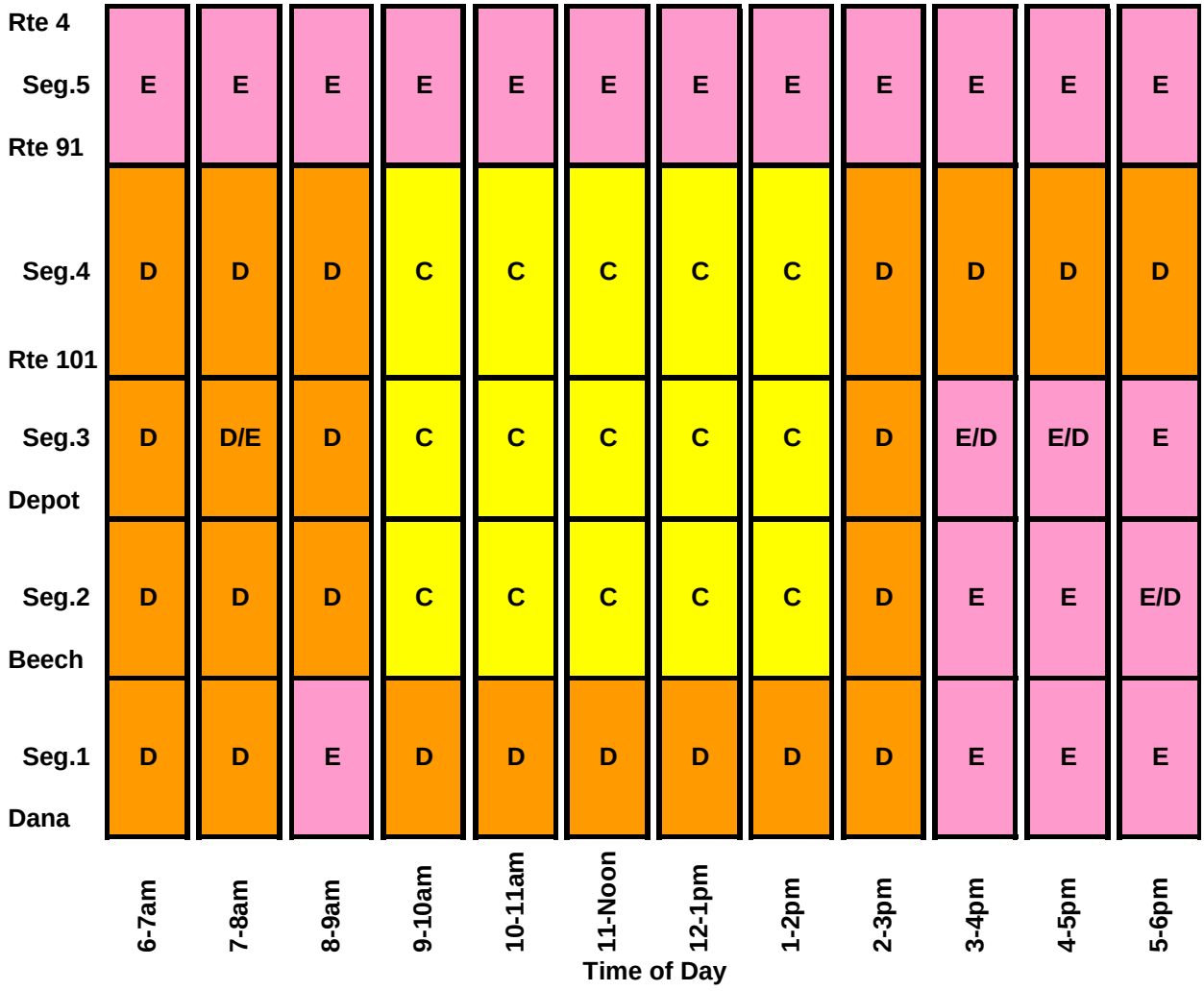
As shown in Table II-12, the two urban roadway segments operate at a LOS A in the Kittery area and LOS D in South Berwick. The five rural roadway segments from Dana Road to Route 4 currently operate at a LOS E except for the segment between Route 101 to Route 91 which operates at LOS D. The volume to roadway capacity range is from 46% to 56%.

As shown in Figure II-13, the rural roadway segments from Dana Road to Route 4 were further analyzed for each hour of the day from 6:00 am to 6:00 pm. The level of service ranges from LOS C to LOS E. The roadway segment from Route 91 to Route 4 is the only segment with a LOS E throughout the day despite the lower traffic volumes in mid day. This is mainly due to the high percentage (87%) of no-passing zones, access points and the lower base free flow speed for that segment. Mainly due to lower traffic volumes, the roadway segments from Beech Road to Route 91 between the hours of 9:00am to 2:00 pm operate at a LOS C.

Table II-12: Level of Service (LOS): Roadway Segments - Existing Conditions (2006)

Town	From	To	Section Mileage	Posted Speed	NB PM Peak ATS 3:30-5:30	PM Peak Avg. Travel Speed Both Dir.	SB PM Peak ATS 3:30-5:30	Design Category	Urban Street Class	LOS (Both Dir.)
Kittery	NB Off-Ramp Cross Over	SB Off-Ramp Cross Over	0.225	45	43.0		42.3			
Kittery	SB Off-Ramp Cross Over	Dana Rd (End of 4-lanes)	0.2	45	44.2		45.0			
			0.425			**43.5**		**High Speed**	**I**	**A**
Kittery	Dana Rd (End of 4-lanes)	Martin Road	0.385	45	25.5		41.2			
Kittery	Martin Road	MacKenzie Lane	0.35	45	39.2		36.7			
Kittery	MacKenzie Lane	Bolt Hill Road	0.335	45	45.4		45.8			
Eliot	Bolt Hill Road	Drive For Boat Buisness (Begin 4-lanes NB)	0.545	45	45.9		42.3			
Eliot	Drive For Boat Buisness (Begin 4-lanes NB)	Beech Road	0.37	35	27.5		35.7			
			1.985			**37.2**		**Rural 2-Lane**		**E** ATS = 37.1 PTSF = 82.6 V/C = 0.56
Eliot	Beech Road	Passamaquoddy (End 4-lanes NB)	0.216	35	37.0		24.9			
Eliot	Passamaquoddy (End 4-lanes NB)	35/45 mph Zone Change	0.216	35	41.6		43.2			
Eliot	35/45 mph Zone Change	Brad Street	0.363	45	31.3		45.3			
Eliot	Brad Street	NB 15 mph School Zone Limit Lights	1.06	45	32.3		46.0			
Eliot	NB 15 mph School Zone Limit Lights	Depot Road	0.17	45	20.9		41.3			
			2.025			**35.7**		**Rural 2-Lane**		**E** ATS = 36.2 PTSF = 80.3 V/C = 0.55
Eliot	Depot Road	SB 15 mph School Zone Limit Lights	0.095	45	34.7		26.6			
Eliot	SB 15 mph School Zone Limit Lights	Ambush Rock Lane	0.8	45	47.5		53.2			
Eliot	Ambush Rock Lane	Route 103	0.475	45	42.9		47.9			
Eliot	Route 103	Heron Cove Road	0.285	45	40.6		43.0			
Eliot	Heron Cove Road	Route 101	0.12	45	22.4		31.2			
			1.775			**43.1**		**Rural 2-Lane**		**E** ATS = 42.9 PTSF = 83.0 V/C = 0.54
Eliot	Route 101	End of SB Guard Rail	0.15	45	36.0		12.1			
Eliot	End of SB Guard Rail	45/55 mph Speed Zone	0.239	45	48.2		52.1			
Eliot	45/55 mph Speed Zone	Lord's Road	0.742	55	50.4		53.6			
S. Berwick	Lord's Road	NB 15 mph School Zone Limit Lights	0.525	55	51.9		52.7			
S. Berwick	NB 15 mph School Zone Limit Lights	SB 15 mph School Zone Limit Lights	0.183	55	49.6		50.0			
S. Berwick	SB 15 mph School Zone Limit Lights	55/45 mph Speed Zone	0.539	55	54.1		52.2			
S. Berwick	55/45 mph Speed Zone	Route 91	0.304	45	48.5		49.0			
			2.682			**46.9**		**Rural 2-Lane**		**D** ATS = 46.3 PTSF = 77.3 V/C = 0.46
S. Berwick	Route 91	Quarry Drive	0.41	45	44.5		48.4			
S. Berwick	Quarry Drive	Brattle St (Vaughan Woods)	0.214	45	44.2		46.7			
S. Berwick	Brattle St (Vaughan Woods)	Vine St. (school area)	0.587	45	45.1		45.6			
S. Berwick	Vine St. (school area)	45/25 mph Speed Zone	0.321	45	41.1		40.5			
S. Berwick	45/25 mph Speed Zone	Route 4	0.166	25	6.5		30.6			
			1.698			**33.5**		**Rural 2-Lane**		**E** ATS = 33.6 PTSF = 81.6 V/C = 0.49
S. Berwick	Route 4	Academy St	0.078	25	19.9		13.2			
S. Berwick	Academy St	Route4/Portland St	0.12	25	18.0		19.3			
			0.198			**17.5**		**Urban**	**III**	**D**
		Total	**10.788**							
Color Key	School Zone 15 mph Flashing Lights	Signalized Intersections								

Figure II-13: Level of Service (LOS): Rural Roadway Segments – Existing Hourly Conditions (2006)



b. Unsignalized Intersections

Levels of service (LOS) for unsignalized intersections are determined by computed or measured control delay in seconds per vehicle. LOS is defined for each minor movement and not for the intersection as a whole. Control delay is defined as the total elapsed time from the time a vehicle stops at the end of the queue to the time the vehicle crosses the stop line at the intersection. LOS ranges are shown in the following table:

Table II-13: LOS Criteria for Unsignalized Intersections

Level of Service	Average Control Delay (sec/veh)
A	0-10
B	>10-15
C	>15-25
D	>25-35
E	>35-50
F	>50

Existing 2006 traffic flow conditions for signalized and unsignalized intersections were evaluated using the SimTraffic microscopic vehicle simulation analysis program. This program models all vehicles traveling through a roadway network by simulating individual vehicle traffic flow. Inputs to the model include roadway geometrics, lane use, intersection control operations, intersection turning movements, and system traffic volume. As the model runs, the location of each vehicle in the model network is tracked for each second of time. With this location and time data compiled for each vehicle, the model then computes a variety of measures of effectiveness (MOE's) for each intersection approach by lane and traffic movement. This comprehensive list of MOE's includes delay per vehicle, along with 50^{th} percentile, 95^{th} percentile and maximum queue lengths by lane. The primary benefit of SimTraffic is that it allows the analyst to view simulated traffic flows on the computer screen. The model results reported for each intersection or roadway segments are based on an average of results from five randomly seeded simulations.

The SimTraffic modeling results for the 2006 unsignalized traffic conditions are presented in Table II-14 and Table II-15. The intersection of Route 236 and Portland Street is unsignalized, but during peak hours a police office is present to direct traffic. Police officers and crossing guards are also present at Norton Street, Central School, and Academy Street. As shown in Table II-14 and Table II-15, without a police officer, the Portland Street intersection would operate at a poor level of service. Other locations with a poor LOS are at the Route 236 and Route 4 intersection and at Academy Street.

Table II-14 : Level of Service (LOS): Unsignalized Intersections – AM Peak Existing Conditions (2006)

Town	Intersection	Minor Street				Major Street (Left Turners)				Overall Intersection Delay (sec/veh)
		EB		WB		NB		SB		
		Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	
Kittery	Route 236 / Exit 3 NB Off-Ramp	-	-	7	**A**	-	-	-	-	2
Kittery	Route 236 / Exit 2 NB Off-Ramp	2	**A**	-	-	-	-	-	-	2
Kittery	Route 236 / Exit 2 SB Off-Ramp	3	**A**	-	-	-	-	-	-	5
Eliot	Route 236 / Bolt Hill Rd	14	**B**	9	**A**	13	**B**	0	**A**	8
Eliot	Route 236 / Route 103	13	**B**	-	-	-	-	-	-	5
South Berwick	Route 236 / Route 91	8	**A**	9	**A**	2	**A**	7	**A**	7
South Berwick	Route 236 / Quarry Dr	-	-	22	**C**	-	-	5	**A**	6
South Berwick	Route 236 / Vine St	17	**C**	24	**C**	7	**A**	9	**A**	8
South Berwick	Route 236 / Route 4	-	-	**9	**A**	*14	**B**	-	-	8
South Berwick	Route 236 / Academy St	-	-	21	**C**	-	-	8	**A**	2
South Berwick	Route 236 / Portland St.	-	-	100+	**F**	-	-	12	**B**	90
South Berwick	Route 236 / Portland St. (Signal to represent Police)	-	-	27	**D**	-	-	29	**D**	20

* Rte 236 Minor Approach

** Left-turn to Rte 236 SB taken from SimTraffic (average of 5 runs)

Table II-15: Level of Service (LOS): Unsignalized Intersections – PM Peak (4:45 pm to 5:45 pm) Existing Conditions (2006)

Town	Intersection	Minor Street				Major Street (Left Turners)				Overall Intersection Delay (sec/veh)
		EB		WB		NB		SB		
		Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	
Kittery	Route 236 / Exit 3 NB Off-Ramp	-	-	10	**A**	-	-	-	-	4
Kittery	Route 236 / Exit 2 NB Off-Ramp	2	**A**	-	-	-	-	-	-	3
Kittery	Route 236 / Exit 2 SB Off-Ramp	5	**A**	-	-	-	-	-	-	3
Eliot	Route 236 / Bolt Hill Rd	12	**B**	25	**C**	13	**B**	11	**B**	11
Eliot	Route 236 / Route 103	27	**D**	-	-	-	-	-	-	6
South Berwick	Route 236 / Route 91	18	**C**	73	**F**	9	**A**	11	**B**	22
South Berwick	Route 236 / Quarry Drive	-	-	87	**F**	-	-	17	**C**	13
South Berwick	Route 236 / Vine Street	27	**D**	30	**D**	11	**B**	8	**A**	10
South Berwick	Route 4 / Route 236	-	-	**15	**B**	*100+	**F**	-	-	44
South Berwick	Route 236 / Academy Street	-	-	100+	**F**	-	-	100+	**F**	38
South Berwick	Route 236 / Portland Street (Police Control)	-	-	35		15	-	31		22
South Berwick	Route 236 / Portland Street (Stop Sign Only)	-	-	100+	**F**			78	**F**	100+

* Rte 236 Minor Approach

** Left-turn to Rte 236 SB taken from SimTraffic (average of 5 runs)

In addition to capacity analysis, a signal warrant analysis of eight intersections was performed to determine if traffic signal installation was warranted for further consideration as a possible improvement to these locations. According to the MUTCD, the satisfaction of a traffic signal warrant or warrants shall not in itself require or justify the installation of a traffic control signal. The signal warrants analysis is based on traffic volumes for an average day. Table II-16 presents a summary showing whether warrants that are satisfied at each of the intersections evaluated. At least one signal warrant is met at the Quarry Road, Route 4, and Portland Street intersections in South Berwick.

Table II-16: Traffic Signal Warrant Analysis of Unsignalized Intersections for an Average Day

Warrant	Kittery Exit 3 NB Off-Ramp	Kittery Exit 2 SB Off-Ramp	Kittery McKenzie Lane	South Berwick Route 91	South Berwick Quarry Road	South Berwick Route 4	South Berwick Academy Street	South Berwick Portland Street
Eight Hour Vehicular Volume	No	No	No	No	No	No	No	Yes
Four Hour Vehicular Volumes	No	No	No	No	Yes	Yes	No	Yes
Peak Hour	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pedestrian Volume	No	No	No	No	No	No	No	No
School Crossing	N/A	N/A	No	N/A	No	N/A	No	No
Coordinated Signal Systems	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crash Experience	No	No	No	No	No	No	No	No
Roadway Network	No	No	No	No	No	Yes	No	Yes

c. Signalized Intersections

Level of service for signalized intersections is evaluated in terms of control delay per vehicle. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and acceleration delay. The LOS criteria for signalized intersections are somewhat higher than the LOS criteria for unsignalized intersections. A signalized intersection is designed to carry higher traffic volumes and experience greater delay. The following table shows the level of service criteria.

Table II-17: LOS Criteria for Signalized Intersections

Level of Service	Control Delay (sec/veh)
A	Up to10
B	10.0 to 20.0
C	20.1 to 35.0
D	35.1 to 55.0
E	55.1 to 80.0
F	Greater than 80.0

Intersection operations along the Route 236 corridor are based on current geometry and signal timing and phasing. Levels of service analyses were conducted at four signalized intersections within the study area. The results of the intersection analysis under 2006 design hour traffic volume conditions are summarized in Tables II-18 and II-19.

The four signalized intersections, as shown in Tables II-18 and II-19, operate overall at LOS B or LOS C. During the PM peak all four intersections operate at LOS C.

Figure II-14 shows the overall delay (seconds/vehicle) for both signalized and unsignalized intersections along with the overall level of service for signalized intersections. For all of the intersections analyzed, the overall delay is generally lower for unsignalized intersections than for signalized intersections. The exceptions to this are the unsignalized intersections in South Berwick downtown area, which have overall delays that are often greater than the delays at signalized intersections elsewhere in the Route 236 corridor.

Table II-18: Level of Service (LOS): Signalized Intersections – AM Peak Existing Conditions (2006) *

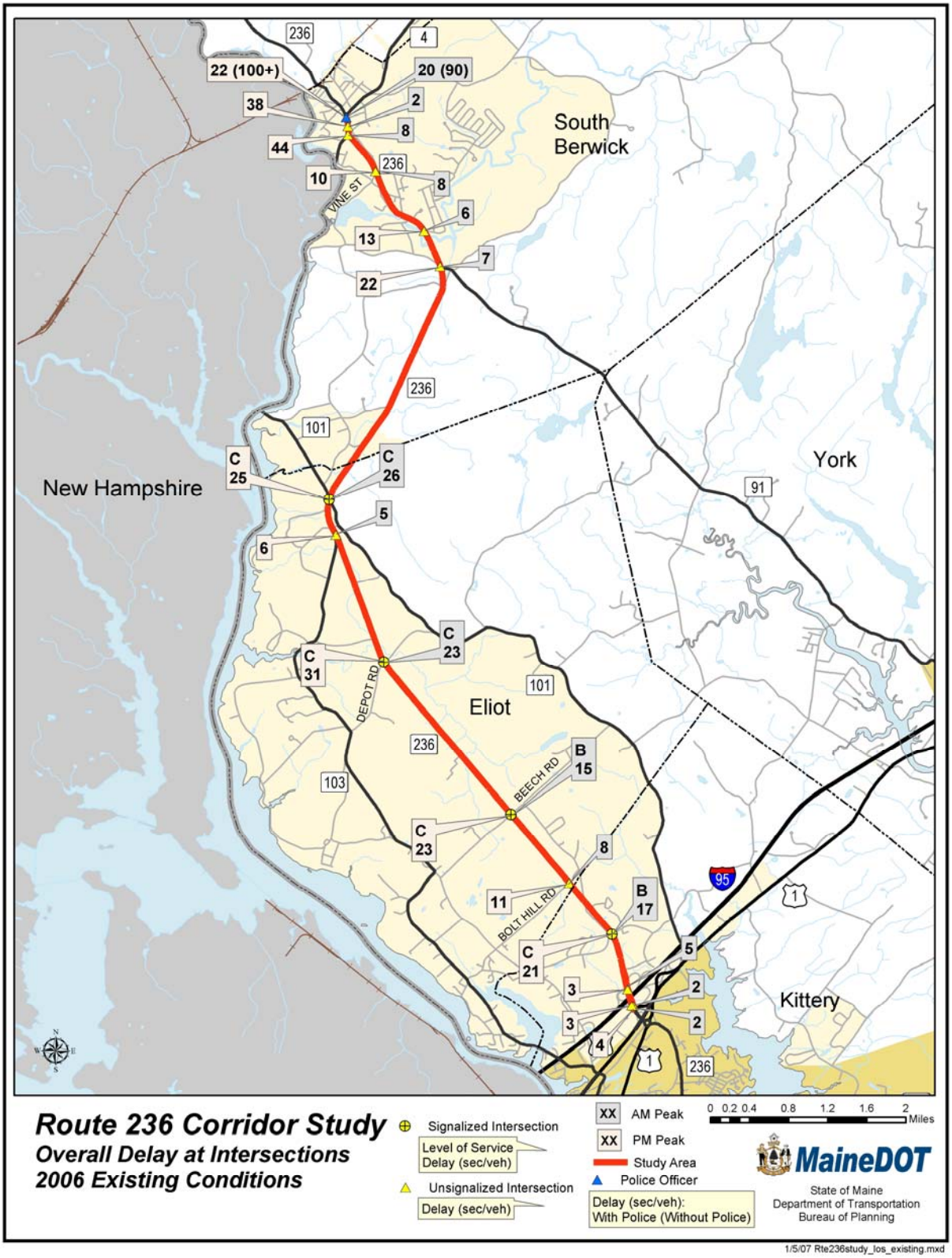
Municipality	Intersection	EB		WB		SB		NB		Overall	
		Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Kittery	Route 236 / Martin St	28	**C**	30	**C**	19	**B**	5	**A**	17	**B**
Eliot	Route 236 / Beech Rd	18	**B**	26	**C**	14	**B**	12	**B**	15	**B**
Eliot	Route 236 / Depot Rd	35	**D**	35	**D**	22	**C**	16	**B**	23	**C**
Eliot	Route 236 / Route 101	38	**D**	17	**B**	25	**C**	22	**C**	26	**C**

Table II-19: Level of Service (LOS): Signalized Intersections – PM Peak Existing Conditions (2006) *

Municipality	Intersection	EB		WB		SB		NB		Overall	
		Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Kittery	Route 236 / Martin St	35	**C**	35	**C**	14	**B**	23	**C**	21	**C**
Eliot	Route 236 / Beech Rd	27	**C**	27	**C**	11	**B**	27	**C**	23	**C**
Eliot	Route 236 / Depot Rd	32	**C**	34	**C**	12	**B**	37	**D**	31	**C**
Eliot	Route 236 / Route 101	30	**C**	27	**C**	21	**C**	25	**C**	25	**C**

* Taken from SimTraffic (average of 5 runs)

Figure II-14: Existing Level of Service

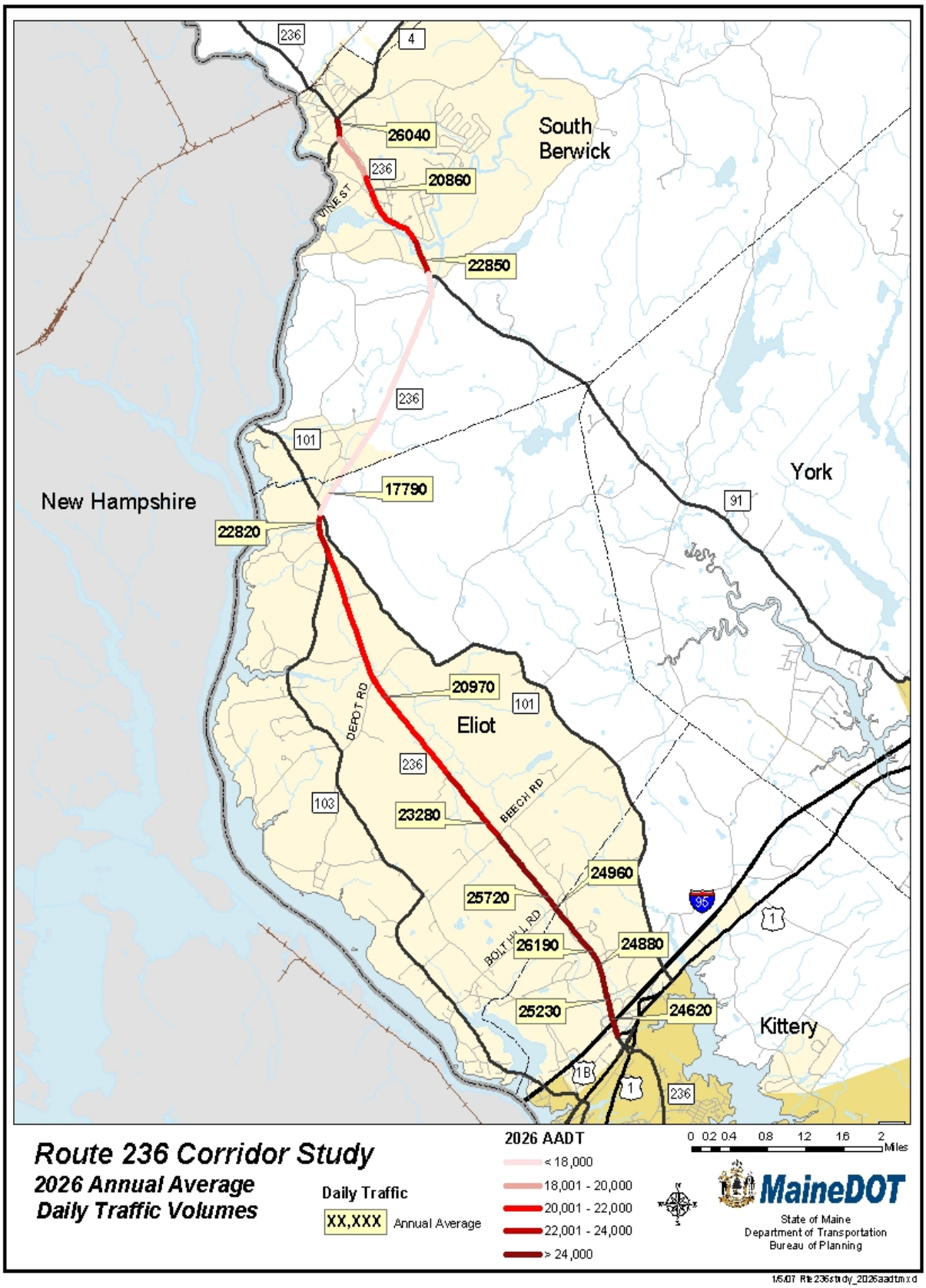


III. Future Conditions

To evaluate the impact of future travel on the existing Route 236 corridor, hourly traffic volume conditions were projected to the year 2026. The procedure used was to estimate annual percentage increases based on historical trends and apply those increases to volumes within the study area. Two different growth rates were projected for the corridor study area. For most of the corridor, from Dana Road in Kittery to the intersection of Route 4/236 in South Berwick, the projected growth rate is approximately 2.0 percent per year (40% in 20 years). For the remainder of the corridor in Kittery and South Berwick, the projected growth rate is approximately 1.5 percent per year (30% in 20 years). The baseline analysis of 2026 conditions assumes that no major improvements, no new signals, and no new access points of any type are implemented within the time period of the study.

Figure III-1 represents the projected 2026 average annual daily traffic (AADT) along the corridor study area.

Figure III-1: 2026 Annual Average Daily Traffic



A. Mobility and Operating Analysis

The effects of projected year 2026 traffic volumes on intersection and roadway segment operating conditions were evaluated using the same analysis procedure described under Chapter II, Existing Conditions.

1. Roadway

Future traffic operating conditions were evaluated along various segments of the study area roadways. The future roadway segment LOS results for the specific segments within the study area are shown in Table III-1. For the two urban segments, average travel speeds were derived from the SimTraffic modeling results. It should be noted that the average travel speed may not be truly represented because not all the future design hour volumes were able to enter the traffic simulation network because of intersection capacity constraints.

On the urban street class I roadway segment from Exit 3 NB Off-Ramp to Dana Road in Kittery, the average travel speed will decrease from 44 mph to 41 mph, thus resulting in a decline from a LOS A to LOS B. On the urban street class III roadway segment from Route 4/236 to Portland Street (Route 4) in South Berwick, the level of service will decline from LOS D to LOS F, and the average travel speeds will decrease from 17 mph to less than 10 mph.

The rural two-lane roadway segments will be either LOS E or LOS F. The future rural two-lane segments will decrease in average travel speed and increase in percent time-spent following. The two segments from Dana Rd to Depot Rd will be LOS F because of the high directionality of the PM traffic, which will exceed the one-lane capacity of these segments in the northbound direction of flow.

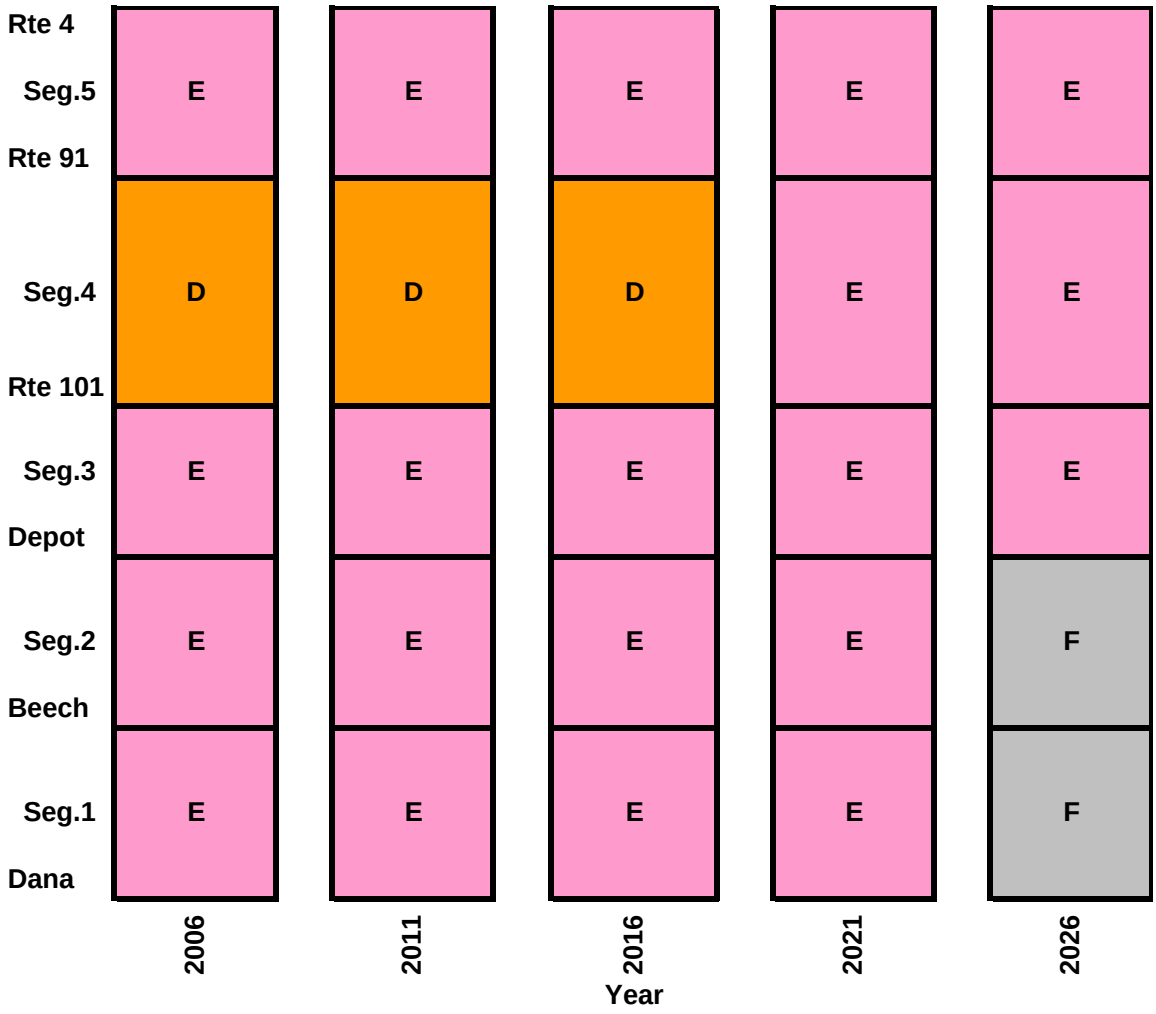
As shown in Figure III-2, the five rural segments were analyzed in five year increments by increasing the volumes by 2.0 percent per year. The level of service will remain the same until year 2016. Between the years 2016 and year 2021, the level of service between Route 101 and Route 91 will decrease from LOS D to LOS E. Between the years 2021 and 2026, the level of service between Dana and Depot Road will decrease from LOS E to LOS F.

Table III-1: Level of Service (LOS): Roadway Segments - Future Conditions (2026)

Town	From	To	Section Mileage	Posted Speed	Design Category	Urban Street Class	LOS (Both Dir.)
Kittery	NB Off-Ramp Cross Over	SB Off-Ramp Cross Over	0.225	45			
Kittery	SB Off-Ramp Cross Over	Dana Rd (End of 4-lanes)	0.2	45			
			0.425		**High Speed**	**I**	**B**
							ATS = 40.8
Kittery	Dana Rd (End of 4-lanes)	Martin Road	0.385	45			
Kittery	Martin Road	MacKenzie Lane	0.35	45			
Kittery	MacKenzie Lane	Bolt Hill Road	0.335	45			
Eliot	Bolt Hill Road	Drive For Boat Buisness (Begin 4-lanes NB)	0.545	45			
Eliot	Drive For Boat Buisness (Begin 4-lanes NB)	Beech Road	0.37	35			
			1.985		**Rural 2-Lane**		**F**
							ATS = 31.2 PTSF = 92.1 V/C = 0.79 NB V/C = 1.01
Eliot	Beech Road	Passamaquoddy (End 4-lanes NB)	0.216	35			
Eliot	Passamaquoddy (End 4-lanes NB)	35/45 mph Zone Change	0.216	35			
Eliot	35/45 mph Zone Change	Brad Street	0.363	45			
Eliot	Brad Street	NB 15 mph School Zone Limit Lights	1.06	45			
Eliot	NB 15 mph School Zone Limit Lights	Depot Road	0.17	45			
			2.025		**Rural 2-Lane**		**F**
							ATS = 30.8 PTSF = 89.4 V/C = 0.77 NB V/C = 1.01
Eliot	Depot Road	SB 15 mph School Zone Limit Lights	0.095	45			
Eliot	SB 15 mph School Zone Limit Lights	Ambush Rock Lane	0.8	45			
Eliot	Ambush Rock Lane	Route 103	0.475	45			
Eliot	Route 103	Heron Cove Road	0.285	45			
Eliot	Heron Cove Road	Route 101	0.12	45			
			1.775		**Rural 2-Lane**		**E**
							ATS = 38.9 PTSF = 90.4 V/C = 0.70 NB V/C = 0.95
Eliot	Route 101	End of SB Guard Rail	0.15	45			
Eliot	End of SB Guard Rail	45/55 mph Speed Zone	0.239	45			
Eliot	45/55 mph Speed Zone	Lord's Road	0.742	55			
S. Berwick	Lord's Road	NB 15 mph School Zone Limit Lights	0.525	55			
S. Berwick	NB 15 mph School Zone Limit Lights	SB 15 mph School Zone Limit Lights	0.183	55			
S. Berwick	SB 15 mph School Zone Limit Lights	55/45 mph Speed Zone	0.539	55			
S. Berwick	55/45 mph Speed Zone	Route 91	0.304	45			
			2.682		**Rural 2-Lane**		**E**
							ATS = 43.3 PTSF = 84.5 V/C = 0.58 NB V/C = 0.83
S. Berwick	Route 91	Quarry Drive	0.41	45			
S. Berwick	Quarry Drive	Brattle St (Vaughan Woods)	0.214	45			
S. Berwick	Brattle St (Vaughan Woods)	Vine St. (school area)	0.587	45			
S. Berwick	Vine St. (school area)	45/25 mph Speed Zone	0.321	45			
S. Berwick	45/25 mph Speed Zone	Route 4	0.166	25			
			1.698		**Rural 2-Lane**		**E**
							ATS = 29.2 PTSF = 90.4 V/C = 0.69 NB V/C = 0.84
S. Berwick	Route 4	Academy St	0.078	25			
S. Berwick	Academy St	Route4/Portland St	0.12	25			
			0.198		**Urban**	**III**	**F***
		Total	**10.788**				ATS = 9.6
Color Key	School Zone 15 mph Flashing Lights	Signalized Intersections					

* The actual speed may be less because not all vehicles are able to enter the network.

Figure III-2: Future Level of Service: Rural Two-Lane Segments at 5-Year Intervals



2. Unsignalized Intersections

The results of the intersection analysis under 2026 design hour traffic volume conditions are summarized in Table III-2 and Table III-3 for unsignalized intersections. As shown in Table III-2, most unsignalized intersections will operate poorly in PM peak-hour conditions.

3. Signalized Intersections

Level of service analyses were conducted at four signalized intersections within the study area. The results of the intersection analysis under 2026 design hour traffic volume conditions are summarized in Table III-4 and Table III-5. The results show that all four intersections that operate at an overall LOS F under 2026 design hour conditions.

Figure III-3 shows the overall delay for both signalized and unsignalized intersections, along with the overall level of service for signalized intersections. The future conditions LOS and delays based on projected volumes (historic growth) and assumes no major improvements to the corridor or intersections. Under future no-build conditions, except by the Interstate ramps, the majority of signalized and unsignalized intersections will have an overall delay of greater than 100+ seconds/vehicle. The following section of this report looks at alternatives to address the deficiencies thus improving the Route 236 corridor.

Table III-2: Level of Service (LOS): Unsignalized Intersections – PM Peak Future Conditions (2026)

Town	Intersection	Minor Street				Major Street (Left Turners)				Overall Intersection Delay (sec/veh)
		EB		WB		NB		SB		
		Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	
Kittery	Route 236 / Exit 3 NB Off-Ramp	-	-	83	**F**	-	-	-	-	17***
Kittery	Route 236 / Exit 2 NB Off-Ramp	3	**A**	-	-	-	-	-	-	3
Kittery	Route 236 / Exit 2 SB Off-Ramp	11	**B**	-	-	-	-	-	-	4
Eliot	Route 236 / Bolt Hill Rd	100+	**F**	100+	**F**	38	**E**	72	**F**	33
Eliot	Route 236 / Route 103	100+	**F**	-	-	100+	**F**	-	-	100+***
South Berwick	Route 236 / Route 91	100+	**F**	100+	**F**	14	**B**	81	**F**	100+***
South Berwick	Route 236 / Quarry Dr	-	-	100+	**F**	-	-	17	**C**	100+***
South Berwick	Route 236 / Vine St	87	**F**	100+	**F**	20	**C**	15	**C**	25***
South Berwick	Route 4 / Route 236 (Police Control)	-	-	**31.4	**D**	*100+	**F**	-	-	100+***
South Berwick	Route 236 / Academy St	-	-	100+	**F**	-	-	100+	**F**	100+***
South Berwick	Route 236 / Portland St. (Police control)	-	-	100+	**F**	-	-	49	**F**	100+***

* Rte 236 Minor Approach ** Left-turn to Rte 236 SB*** Capacity constraints present some vehicles from passing through the intersection.

Taken from SimTraffic (average of 5 runs)

Table III-3: Level of Service (LOS): Unsignalized Intersections – AM Peak Future Conditions (2026)

Town	Intersection	Minor Street				Major Street (Left Turners)				Overall Intersection Delay (sec/veh)
		EB		WB		NB		SB		
		Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	
Kittery	Route 236 / Exit 3 NB Off-Ramp	-	-	16	**C**	-	-	-	-	5
Kittery	Route 236 / Exit 2 NB Off-Ramp	2	**A**	-	-	-	-	-	-	3
Kittery	Route 236 / Exit 2 SB Off-Ramp	3	**A**	-	-	-	-	-	-	4
Eliot	Route 236 / Bolt Hill Rd	98	**F**	34	**D**	27	**D**	16	**C**	14
Eliot	Route 236 / Route 103	100+	**F**	-	-	35	**D**	-	-	12
South Berwick	Route 236 / Route 91	24	**C**	100+	**F**	34	**D**	9	**A**	34
South Berwick	Route 236 / Quarry Dr	-	-	100+	**F**	-	-	10	**B**	60
South Berwick	Route 236 / Vine St	49	**E**	100+	**F**	14	**B**	12	**B**	61
South Berwick	Route 236 / Route 4 (Police Control)	61	**F**	12	**B**	21	**C**	-	-	26
South Berwick	Route 236 / Academy St (Police Control)	-	-	36	**E**	22	**C**	3	**A**	14
South Berwick	Route 236 / Portland St. (Police Control)	-	-	100+	**F**	14	**B**	100+	**F**	100+

Taken from SimTraffic (average of 5 runs)

Table III-4: Level of Service (LOS): Signalized Intersections – AM Peak Future Conditions (2026) Taken from SimTraffic

Municipality	Intersection	EB		WB		SB		NB		Overall	
		Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Kittery	Route 236 / Martin St	69	**E**	100+	**F**	39	**D**	7	**A**	36	**D**
Eliot	Route 236 / Beech Rd	25	**C**	39	**D**	28	**C**	15	**B**	26	**C**
Eliot	Route 236 / Depot Rd	48	**D**	65	**E**	100+	**F**	28	**C**	100+	**F***
Eliot	Route 236 / Route 101	84	**F**	69	**F**	100+	**F**	20	**B**	92	**F**

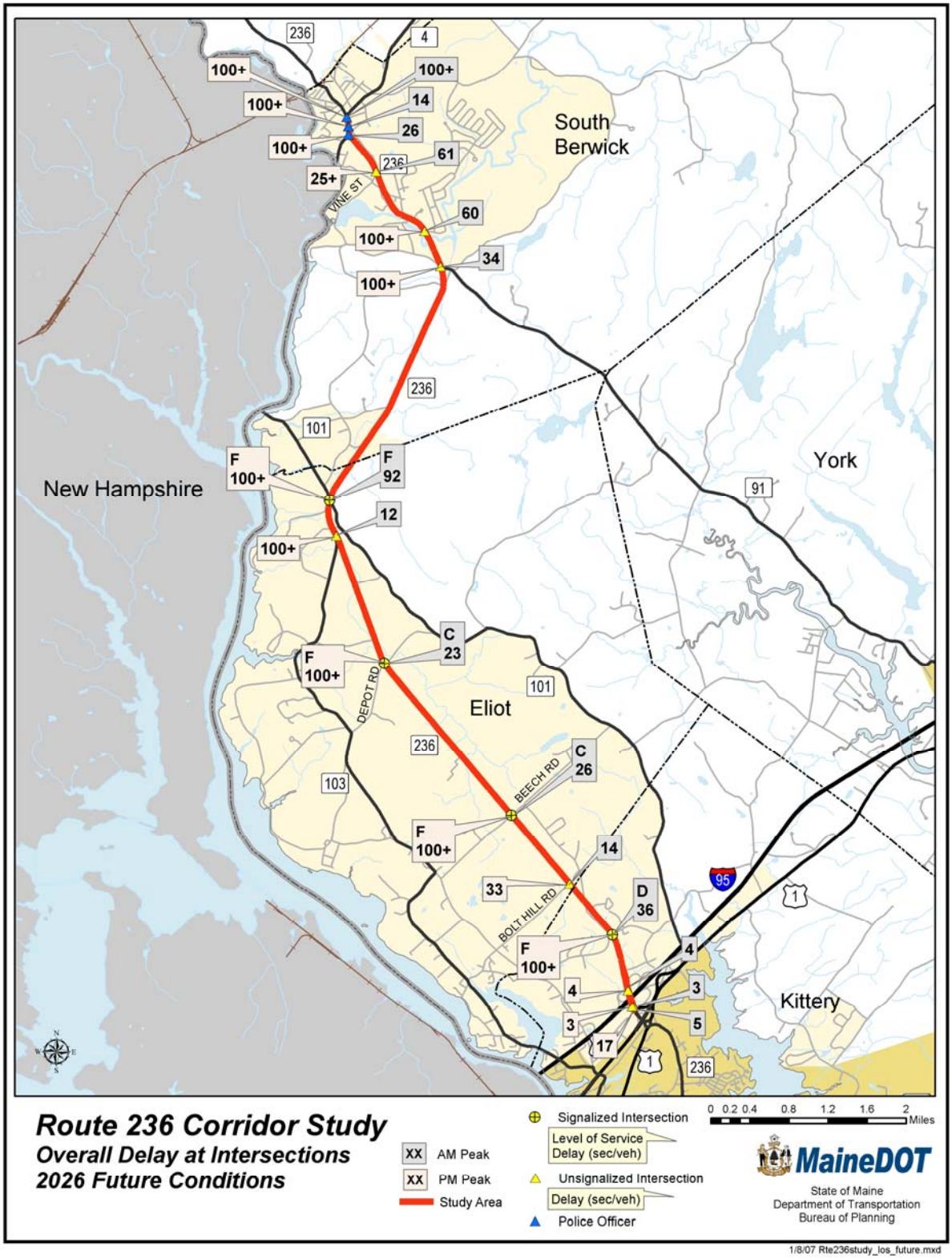
*Capacity constraints prevent some vehicles from passing through the intersection.

Table III-5: Level of Service (LOS): Signalized Intersections – PM Peak Future Conditions (2026) Taken from SimTraffic

Municipality	Intersection	EB		WB		SB		NB		Overall	
		Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Kittery	Route 236 / Martin St	82	**F**	100+	**F**	100+	**F**	100+	**F**	100+	**F***
Eliot	Route 236 / Beech Rd	34	**C**	28	**C**	16	**B**	100+	**F**	100+	**F***
Eliot	Route 236 / Depot Rd	58	**E**	52	**D**	17	**B**	100+	**F**	100+	**F***
Eliot	Route 236 / Route 101	43	**D**	84	**F**	100+	**F**	78	**F**	100+	**F***

Taken from Sim Traffic (average of 5 runs)
*Capacity constraints prevent some vehicles from passing through the intersection.

Figure III-3: Future Level of Service



B. Future Uncertainty

The analysis of the 2026 projections in the Route 236 Corridor Study provides a reasonable estimate of future conditions based on historic growth in the corridor. However, some external factors and trends, as discussed below, could have a substantial impact on future traffic volumes and congestion levels.

The population of the United States is aging. As the wave of baby boomers, born between 1945 and 1965, enter their 60's, 70's, and 80's, the driving habits of a large segment of population will change. Older people drive less and rely on public transportation more. This trend will tend to slow the growth of automobile travel.

Recent experience in the last three years has shown that increases in the price of gasoline can reduce automobile travel. The future price of motor fuels is difficult to predict, but rising demand for fuel in rapidly growing economies in China, India, and other parts of the developing world will put increasing pressure on the petroleum supplies and upward pressure on energy prices. These pressures will push transportation in the United States more toward alternative fuels, fuel-efficient vehicles, and other modes of transportation.

Transportation funding by conventional motor fuel taxes is becoming less able to keep up with financial demands of maintaining and improving the highway system. Recent trends of higher fuel prices and less dependence on gasoline and diesel fuels, coupled with rising highway and bridge construction costs, are creating a widening gap between revenues and needed expenditures. These trends will push policy makers to find new means of collecting revenue for transportation.

IV. Alternatives

The alternatives chapter discusses different ways of addressing problems noted in existing conditions and expected for future conditions. Advantages and disadvantages are discussed for each alternative; the Recommendations chapter proposes which alternatives to pursue further.

A. Kittery - Eliot - South Berwick

This section focuses on alternatives for both intersections and roadway segments for the towns of Kittery, Eliot and South Berwick (south of the South Berwick Downtown area). The South Berwick Downtown area is considered in Section B.

1. Intersections (Alternatives)

Intersection improvement alternatives were evaluated for the following intersections along the Route 236 corridor: Martin/Stevenson Road, Bolt Hill Road, Depot Road, Route 101 and at Route 91.

a. Martin/Stevenson Road - Kittery

The Martin/Stevenson Road intersection is signalized. Currently, the mainline northbound and southbound approaches to the intersection each have a through and a left-turn lane. However, the left-turn lanes do not have a protected left-turn phase (left green arrow).

Adding a protected left-turn phase to the signal is a possible short-term alternative. At the Town's request, this alternative was modeled, and a benefit/cost analysis was performed. The benefits (measured by the dollar value of annual time savings and annual crash savings) were compared with the improvement cost (measured by the annualized cost of construction). Adding an extra phase to the signal actually increased overall delay, so there were no annual time savings. However, given the intersection's crash history, crash reduction benefits are realized from reducing the number of left-turn crashes. Given these benefits and the relatively low cost (estimated $10,000 for the Town to install an additional signal head), the benefit/cost ratio is over 23. A benefit/cost ratio greater than 1.0 indicates an improvement with benefits greater than the cost.

Looking at future conditions, three alternatives were analyzed for this intersection: transportation demand management (TDM), 4 through lanes, and a 2-lane roundabout. Table IV-1 below shows the overall delay and volume to capacity ratio for future PM peak traffic volumes.

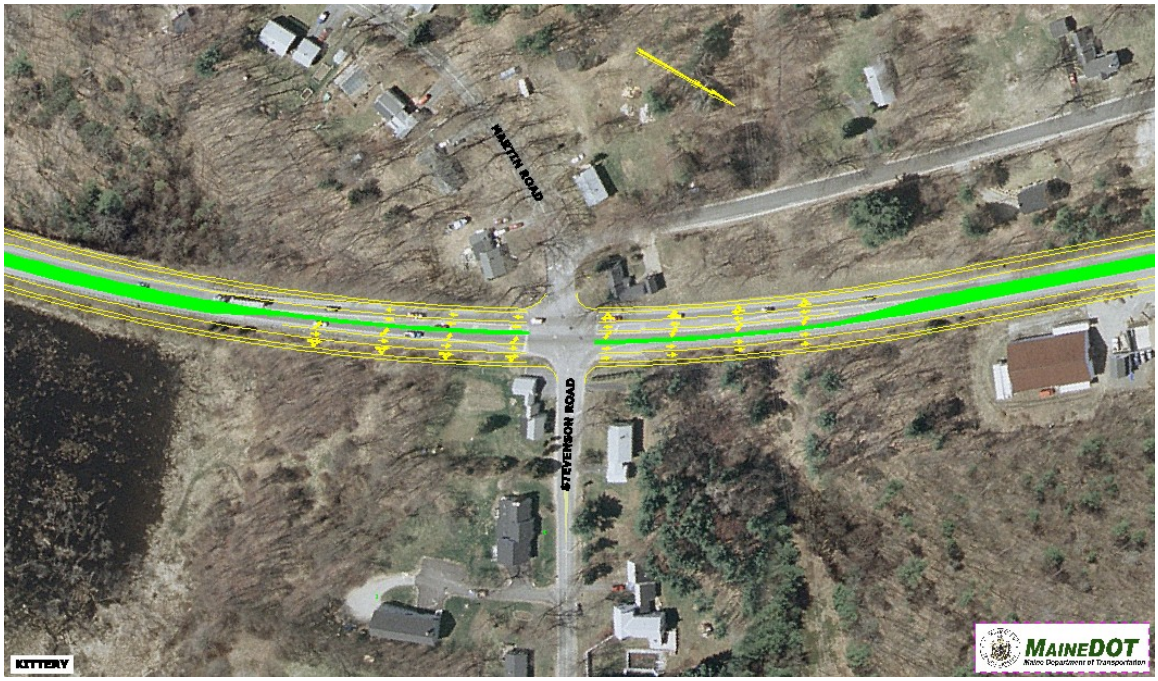
Table IV-1: Martin/Stevenson Road Alternatives

	2026 PM No-Build	2026 PM TDM (-350)	2026 PM 4-Lanes	2026 PM Roundabout
Overall Delay (sec/veh)	100+	27	35	13
Volume/Capacity	1.07	0.88	0.71	

The TDM alternative is the use of low-cost actions to modify travel behavior and thus remove a certain number of vehicles in the peak direction. The TDM alternative would remove 350 peak-direction vehicles in the peak hour. The 350 vehicles would come from the northbound flow of vehicles on Rte 236 during the PM peak hour. As table IV-1 indicates, the overall delay at the intersection would be reduced from 100+ seconds to approximately 27 sec/veh. This alternative would not require the widening of the intersection.

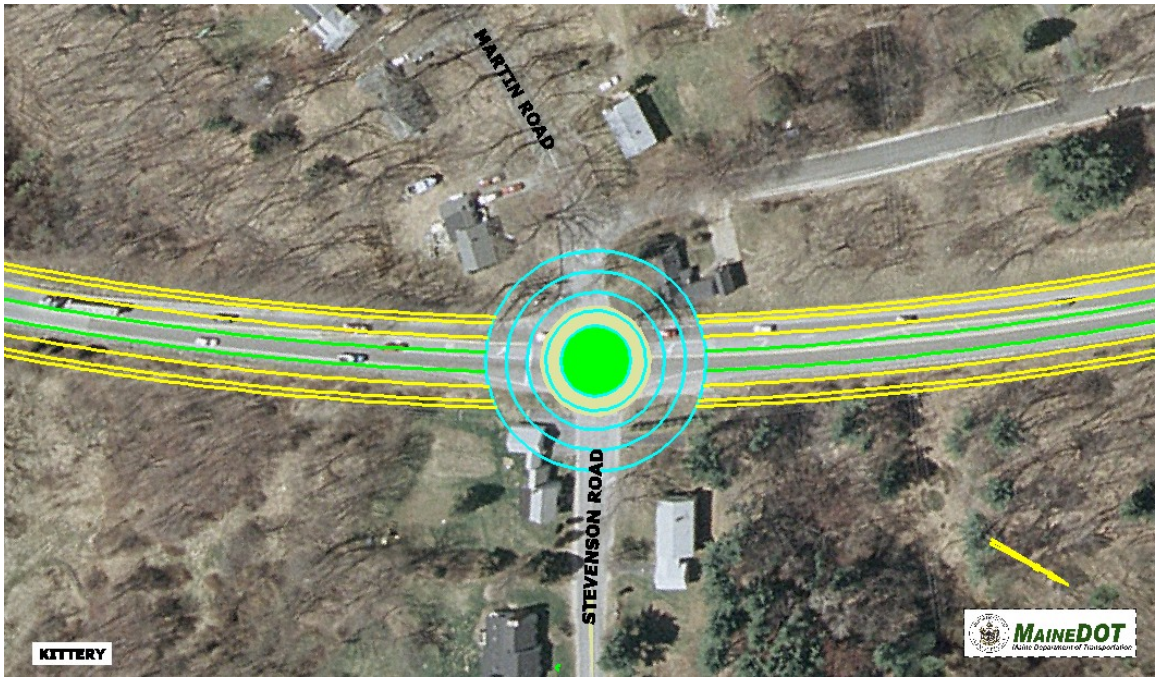
The 4-lane alternative would require widening of the roadway for both northbound and southbound with 2 through lanes and a left-turn lane. The future overall delay in the PM peak hour would be reduced from (no-build) 100+ sec/veh to approximately 35 sec/veh with this alternative. As shown in Figure IV-1, widening of the roadway would impact the properties on both sides of the road.

Figure IV-1: Martin / Stevenson 4-Lanes



The 2-lane roundabout alternative would be similar to the 4-lane alternative but instead of having a left-turn lane and a signal it would have a 2-lane roundabout. As shown in Table IV-1, the overall future PM peak hour delay would be reduced from 100+ sec/veh to 13 sec/veh. In Figure IV-2, the outer blue line shows the outside diameter of a 2-lane roundabout, and its right of way impacts on the two buildings on the corners.

Figure IV-2: Martin / Stevenson Roundabout



a. Bolt Hill Road- Eliot

The Bolt Hill Road intersection is unsignalized. Currently, the mainline northbound and southbound approaches have one lane and both Bolt Hill Road approaches also have one lane. A flashing beacon was installed in late 2007, but it has not been activated. The intersection has been a high crash location (HCL).

To address the HCL, a left-turn lane for the mainline approach in both directions was evaluated as shown in Figure IV-3. The left-turn vehicles would be protected from through traffic by a raised island. According to the Federal Highway Administration Report No. FHWA-RD-02-089, for installation of left-turn lanes on both the major-road approaches to rural intersections, the expected percentage reduction in total intersection crashes is 48%. Even with the expected reduction in crashes, this alternative's benefit/cost ratio is only 0.14.

Figure IV-3: Bolt Hill Left-Turn Lanes

Four different alternatives were analyzed for the intersection to address future conditions delays on Bolt Hill Road and the high crash location: TDM, 4 through lanes (with the left-turn lane), 2-Lane Roundabout, and a future signal (with 4 through lanes). Table IV-2 summarizes the overall delays and volume to capacity ratio for future PM peak traffic volumes.

Table IV-2: Bolt Hill Road Alternatives

	2026 PM No-Build	2026 PM TDM (-350)	2026 PM 4-Lanes Lt. Turn Ln	2026 PM 4-Lanes Roundabout	2026 PM 4-Lanes Signal
Ovelall Delay (sec/veh)	33	6	4	12	5
Volume/Capacity	n/a	n/a	n/a		0.56

The Travel Demand Management (TDM) alternative would reduce peak-direction flow by 350 vehicles in the peak hour. As Table IV-2 indicates, the overall delay at the intersection would be reduced from 33 sec/veh to approximately 6 sec/veh. The delay for the Bolt Hill Road approaches would decrease from 100+ sec/veh (both approaches) to 17 sec/veh on the eastbound approach and to 24 sec/veh on the westbound approach. This alternative would not require the widening of the intersection but would not help to reduce the rear-end crashes for vehicles turning left from Route 236.

The 4-lane alternative would require widening of the mainline roadway for both northbound and southbound with 2 through lanes and a left-turn lane on the Route 236

approaches. The overall delay would be reduced from 33 sec/veh (no-build) to approximately 4 sec/veh with this alternative. The delay for Bolt Hill Road would decrease from 100+ sec/veh (both approaches) to 10 sec/veh on the eastbound approach and to 24 sec/veh on the westbound approach. This alternative would require the widening of the intersection and would help to reduce rear-end crashes (for vehicles turning left from the mainline).

The 2-lane roundabout alternative would be similar to the 4-lanes alternative, but instead of having a left-turn lane, it would have a 2-lane roundabout. As shown in Table IV-2, the overall future PM delay would be reduced from 33 sec/veh to 12 sec/veh. The delay for Bolt Hill Road would decrease from 100+ sec/veh (both approaches) to 4 sec/veh on the eastbound approach and to 17 sec/veh on the westbound approach.

The last alternative would have 4 lanes with a protected left-turn lane and a signal. As shown in Table IV-2, the overall future PM delay would be reduced from 33 sec/veh to 5 sec/veh. The delay for Bolt Hill Road would decrease from 100+ sec/veh (both approaches) to 10 sec/veh on the eastbound approach and to 16 sec/veh on the westbound approach.

c. Depot Road- Eliot

The Depot Road intersection is signalized. Currently, the mainline has a left-turn lane and thru-lane in each direction and the side street has a one-lane approach in each direction. Cedar Road runs parallel to Route 236 close to the Depot Road intersection. Although traffic volumes on Cedar Road are relatively low, these vehicles must negotiate what is essentially a 5-way intersection. In particular, large trucks southbound on Route 236 must make a virtual U-turn to reach local businesses on Cedar Road; this is further complicated by queued traffic on Depot Road. Currently, there are long queues in the PM in the northbound direction.

There are challenges presented by the close proximity of Cedar Road. There is a steep slope in between Route 236 and Cedar Road, which makes connecting these two roads in another location difficult.

Three different alternatives for addressing existing conditions were analyzed: no-build with a signal for Cedar Road, 4-through lanes (with a left-turn lane), and 4 lanes with a signal for Cedar Road. Table IV-3 summarizes the overall delays and the V/C ratios for existing PM peak traffic volumes.

Table IV-3: Depot Road Existing Alternatives

	2006 PM No-Build	2006 PM No-Build w/ Cedar Rd Signal	2006 PM 4-Thru Lanes On Rte 236	2006 PM 4-Thru Lanes Cedar Rd Signal
Overall Delay (sec/veh)	31	52	9	31
Volume/Capacity	0.92	0.96	0.5	0.63

The Cedar Road signal alternative would add a signal at the Cedar/Depot intersection and this new signal would work in conjunction with the existing Route 236/Depot Road signal. The added phases would increase the delay from an overall delay of 31 sec/veh to 52 sec/veh and increase the volume to capacity ration from 0.92 to 0.96. An increase in delay results when Cedar Road gets the green signal because no other movements can be allowed (including the Depot westbound approach). Also, eastbound Depot Road vehicles would have to stop west of the Cedar Road, which would increase signal clearance times for eastbound vehicles. While this alternative may help prevent vehicles from blocking Depot Road, it makes the overall delay worse.

The second alternative, shown in Figure IV-4, would add protected left-turn lanes in each direction on the mainline and two through lanes (400 feet upstream of the intersection and 1000 feet downstream) in each direction on the mainline. It would also add a left-turn lane on both Depot Road approaches. As indicted in Table IV-3, delay (for existing traffic volumes) would be reduced from 31 sec/veh to approximately 9 sec/veh. The benefit/cost ratio for this alternative is 2.1.

Figure IV-4: Depot Road

The third alternative is the same as the second on the mainline, but would add a signal phase for Cedar Road. As shown in Table IV-3, this alternative does not reduce delay at all; it has a -0.06 benefit to cost ratio.

For the short term, each of these three alternatives has advantages and disadvantages. The next step was to analyze the same three alternatives using expected volumes for the year 2026. In addition, the TDM option was analyzed for 2026 conditions. Table IV-4 summarizes the overall delay and volume-to-capacity ratios for these four alternatives for future PM peak traffic volumes.

Table IV-4: Depot Road Future Alternatives

	2026 PM No-Build	**2026 PM No-Build w/ Cedar Signal**	**2026 PM TDM(-350)**	**2026 PM 4-Lanes**	**2026 PM 4-Lanes Cedar Signal**
Overall Delay (sec/veh)	100+	100+	60	21	43
Volume/ Capacity	1.25	1.35	0.95	.62	.92

The no-build with a signal for Cedar Road alternative would increase the volume to capacity ratio from 1.25 to 1.35. This alternative would not work under future projected conditions.

The transportation demand management (TDM) alternative would reduce peak-direction flow by 350 vehicle in the peak hour. As Table IV-4 indicates, the overall delay at the intersection would be reduced from 100+ sec/veh to approximately 60 seconds/vehicle. This alternative would not require the widening of the intersection.

The 4-lane alternative would require widening of the roadway for both northbound and southbound with 2-through lanes and a left-turn lane, and widening on Depot Road for the left-turn lane. The overall delay would be reduced from 100+ sec/veh (No-Build) to approximately 21 sec/veh with this alternative. This alternative would require widening, which would bring Route 236 closer to Cedar Road.

The last alternative is the 4-lanes but with a signal at Cedar Road that would work in conjunction with the Depot Road signal. As shown in Table IV-4, the overall future PM delay would be reduced from 100+ sec/veh to 43 sec/veh and the V/C ratio from 1.25 to 0.92. Both of the 4-lane alternatives include new raised islands on Route 236; southbound Rte 236 traffic could no longer turn left into the southern driveway of the school. Traffic flow into and out of the school would have to be addressed.

d. Route 101- Eliot

The Route 101 intersection is signalized and skewed. Currently, the mainline has a left-turn lane and thru-lane in each direction and the side street has a one lane approach for

the westbound approach and a right turn lane in the eastbound approach. Also, the Route 236 northbound left (toward Dover, New Hampshire) has a protected left arrow but the southbound lefts do not. The intersection is a high crash location. The skew of the intersection makes it very wide and future long delay and poor level of service.

Two different alternatives for addressing existing conditions were analyzed: No-Build with adding a lagging southbound protected left-turn phase to the signal, and 4-through lanes (with left-turn lanes). Table IV-5 summarizes the overall delays and volume to capacity ratio for existing PM peak traffic volumes.

Table IV-5: Route 101 Existing Alternatives

	2006 PM No-Build	**2006 PM No-Build w/ Protected SB Lefts**	**2006 PM 4-Thru Lanes On Rte 236**
Overall Delay (sec/veh)	25	26	17
Volume/Capacity	0.75	0.72	0.57

The first alternative, adding a protected left-turn phase for Route 236 southbound, would provide protection for southbound lefts. Because of the skew of the intersection, the protected phase should be lagging (there could be conflicts with concurrent lefts because of the roadway alignment). In the three-year period, 24 crashes occurred at the intersection of which two involved southbound left-turners. As indicated in Table IV-5, delay (for existing traffic volumes) would increase from 25 sec/veh to 26 sec/veh. The benefit/cost ratio for this alternative is 0.34.

The second alternative, shown in Figure IV-5, would add protected left-turn lanes in each direction on the mainline and two through lanes (400 feet upstream of the intersection and 1000 feet downstream) in each direction on the mainline. As indicated in Table IV-5, delay (for existing traffic volumes) would be reduced from 25 sec/veh to approximately 17 sec/veh. The benefit/cost ratio for this alternative is 0.38.

Figure IV-5: Route 101

For the short-term, each of the alternatives had a low benefit/cost ratio. The next step was to analyze different alternatives using expected volumes for the year 2026. Table IV-6 summarizes the overall delay and volume to capacity ratios for two alternatives for future PM peak traffic volumes.

Table IV-6: Route 101 Future Alternatives

	2026 PM No-Build	**2026 PM No-Build w/ TDM (-350)**	**2026 PM 4-Thru Lanes On Rte 236**
Overall Delay (sec/veh)	100+	100+	32
Volume/Capacity	1.03	.94	0.70

The transportation demand management (TDM) alternative of removing 350 through vehicles in the peak northbound direction would not be adequate for future conditions at this intersection. Because of the heavy northbound lefts (to New Hampshire), more than 350 peak-hour (through and left-turn) vehicles would need to be removed from the intersection in the future.

The four-lane alternative as described above, and as indicated in Table IV-6, would reduce the future delay from 100+ sec/veh to 32 sec/veh. As shown in Figure IV-5, this alternative would require widening. A restaurant business in the southwest quadrant is very close to Route 236, so the mainline of Route 236 would most likely be widened on the east side and would require lowering the grade for Route 101 westbound (in order to avoid an abrupt change in grade where Route 236 and Route 101 would come together).

This alternative would address mobility issues, but could have right-of-way impacts. It would not rectify the skew of the intersection.

e. Route 91- South Berwick

The Route 91 intersection is skewed intersection (like the Rte 101 intersection) but unsignalized. Before the fall of 2007, the mainline had a through lane in each direction. The two side streets (Rte 91 and Old South Road) have one-lane approaches with triangular raised islands, which direct traffic turning left (out onto Route 236) to a point downstream of the main intersection. This arrangement has the disadvantage that, if more than a couple of side-street vehicles are waiting to turn left, the vehicles queue out onto the side street and are at risk of being struck by traffic turning left off of Route 236. Also, with the old configuration, vehicles southbound on Route 236 would often ride on the wrong side of the road prior to turning left onto Route 91 (perhaps out of fear of being rear-ended by Route 236 SB through traffic). The intersection is a high crash location.

The AM peak hour has over 200 southbound vehicles turning left onto Route 91, which is enough to warrant a left-turn lane. Based on this early finding (recommendation) the Corridor Committee, the intersection was re-striped in the fall of 2007, as shown in Figure IV-6. The northbound traffic was shifted (by a striped island) to provide room for a striped southbound left- turn lane. The striping improvement helped to provide better guidance through the intersection and to improve safety for southbound left-turning traffic.

Figure IV-6: Route 91

The short-term improvements do not address the future (2026) delay or the skew of the intersection. Table IV-7 summarizes the overall delay for five different alternatives for future PM peak traffic.

Table IV-7: Route 91 Future Alternatives

	2026 PM No-Build	2026 PM Alt. 1	2026 PM Alt. 2	2026 PM Alt. 3	2026 PM Alt. 4	2026 PM Alt. 5
Overall Delay (sec/veh)	100+	100+	100+	100+	23	32
Vol./Capacity	n/a	n/a	n/a	n/a	n/a	0.69

Alternative 1, transportation demand management would remove 350 vehicles in the northbound direction on Route 236. As shown in Table IV-7, the removal of 350 vehicles would not be adequate for future conditions.

Alternative 2, shown in Figure IV-7, would split the intersection into two Tee intersections. Delay (for Alternative 2) would decrease somewhat, but would still be unacceptable at over 100 sec/veh. Because of the close proximity of the two intersections, queued SB left-turning traffic would block Old South Road. Another problem with this alternative is that there would be more right-of-way impacts, especially in the northwest corner.

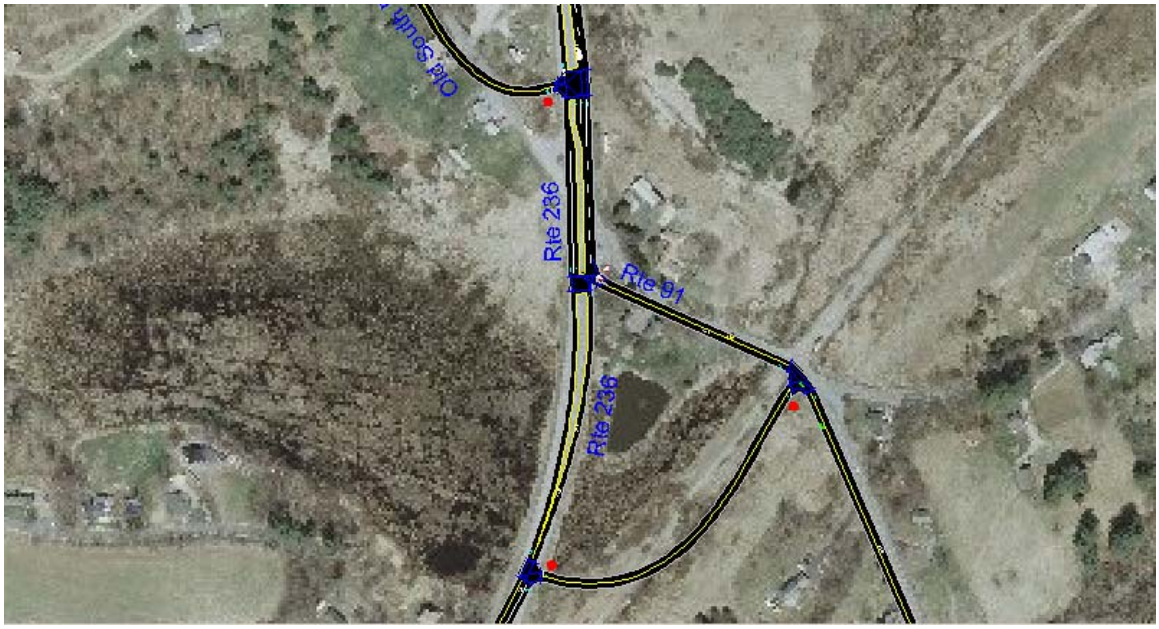
Figure IV-7: Route 91 Alternative 2

Alternative 3, shown in Figure IV-8, would relocate Route 91 further south to the old rail line that is currently occupied by two power lines and two gas lines. While this would help resolve the southbound left-turn queue, it would not help with the future delay for the intersection. Another advantage of re-locating Route 91 is that it may have a better sight distance than at the current location.

Figure IV-8: Route 91 Alternative 3

Alternative 4, shown in Figure IV-9, is similar to the third alternative but would separate Route 91traffic. Route 91 vehicles that are turning right (Rte 236 NB) would continue on the existing Route 91 alignment and Route 91 southbound vehicle would go on the new alignment. Route 236 northbound traffic to Route 91 would take the new alignment, and southbound vehicles to Route 91 would turn left at the existing location. This alternative would also have an acceleration lane for Route 91 to Route 236 northbound traffic. In addition, the intersection of Old South Road would be re-located to help separate the two intersections and to provide left-turn storage.

Figure IV-9: Route 91 Alternative 4



As Table IV-7 indicates, this alternative has the shortest amount of delay and it wouldn't need to be signalized. However, there would right-of-way impacts associated with the existing location of the utilities on the old rail line.

Alternative 5, shown in Figure IV-10, would signalize the intersection. It would construct protected left-turn lanes in each direction on the mainline and 2 through lanes (400 feet upstream of the intersection and 1000 feet downstream) in each direction on the mainline. The triangular raised islands on the side streets would be only for traffic turning right off the mainline; side street traffic turning left onto the mainline would have to go through the main intersection. This would eliminate the potential for queued left-turners (on the side street) being struck by traffic turning left off the mainline.

Figure IV-10: Route 91 Alternative 5

As indicated in Table IV-7, delay would be reduced from 100+ sec/veh to 32 sec/veh. This alternative would improve the safety of the intersection by having protected left-turn lanes. This alternative would improve safety for the side road lefts by bringing them into the intersection. This alternative would still be a skewed intersection and will have right-of-way and environmental impacts. The benefit/cost ratio for this alternative is 0.55.

2. Roadway Segments Network (Long-Term Alternatives)

This section will look at different long-term alternatives evaluated to address the two roadway segments (in section III A.1) that would be LOS F (from Dana Road in Kittery to Depot Road in Eliot) under projected future conditions. These long-term alternatives were modeled using Synchro/SimTraffic traffic simulations. Table IV-8 is a summary of the future 2026 PM peak for the segments overall (from Dana Road to Depot Road) and for the intersections from Martin Road to Depot Road.

Table IV-8: Dana Rd to Depot Rd Roadway Alternatives

	2026 PM No-Build	2026 PM TDM (-350)	2026 PM 4-Lanes w/ Intersection Improvements	2026 PM 4-Lanes w/ Roundabouts
Simulation Model				
Travel Distance (Veh.-Miles Traveled)	9394	8397	10068	10134
Travel Time (Veh.-Hours Traveled)	460	252	256	276
Total Delay(veh- hrs)	280*	89	62	57
Dana to Depot Rd.				
NB Avg. Speed (mph)	23	34	40	37
SB Avg. Speed (mph)	37	42	44	41
Overall Avg. Speed (mph)	**29**	**38**	**42**	**39**
LOS (Urban St. Class 1)	**C**	**B**	**A/B**	**A/B**
LOS (Rural 2-Lane)	**F**	**E**	**N/A**	**N/A**
Intersections				
Depot Road Delay (sec/veh)	100+	60	21	21
Beech Road Delay (sec/veh)	100+	24	24	19
Bolt Hill Road Delay (sec/veh)	33	6	4	12
Martin/Stevenson St. Delay (sec/veh)	100+	27	35	22
Key:	Signalized	Roundabout	Unsignalized	

Note: Taken from SimTraffic (average of 5 runs)
* Not all future design hour vehicles (163) are able to enter network due to capacity constraints.

The first part of Table IV-8 describes travel in the overall traffic simulation model. The travel distance is the summation of the number of vehicles times the distance traveled in the model. The travel time is a total of the time each vehicle was present in the model. The travel time includes time spent by vehicles being denied into the network (due to capacity constraints). Total delay is equal to the total travel time minus the travel time for the vehicle with no interference from other vehicles or traffic control devices. Total delay also includes all time spent by denied entry vehicles while they are waiting to enter the simulated area of the model.

The average speed is calculated by dividing the total distance by total time in the model. Average speed is weighted by volume, and includes stopped time and denied entry time. The time use in calculation for average speed does not include time spent by denied entry vehicles while they are waiting to enter the network. The LOS for the different

alternatives is based on the average speed determine by the model. The last section is a summary of the overall intersection delays.

a. Transportation Demand Management Alternative

The transportation demand management (TDM) alternative is the use of low-cost actions to modify travel behavior by encouraging people to share rides, telecommute, use transit, or change their travel route. By definition TDM does not include physical improvements to the roadway or network being considered.

For purposes of this Corridor Study, the TDM alternative simply analyzed how many vehicles would need to be removed from the peak direction in the future to improve the level of service from F to E. The first step in doing this was to identify those roadway segments that, under 2026 future conditions, would have a LOS F. It was determined that the roadway segments between Dana Road and Depot Road would have LOS F under 2026 conditions, and that the Depot Road intersection was the worst bottleneck in that 4-mile section. Looking at the volumes at the Depot Road intersection, it was found that 350 vehicles per hour (in the peak direction in the peak hour) would need to be removed in order to achieve a LOS E for the intersection. The 350 vehicles would come from the northbound vehicles on Route 236.

Besides improving 2026 intersection LOS, the removal of 350 vph would also improve LOS on the roadway segments between Dana Road and Depot Road. These segments are LOS F because the directional volume exceeds the one-lane capacity. The maximum directional lane capacity is 1,700 passenger cars/hour (pc/hr). The 2026 volumes for Dana Road to Depot Road exceed this by less than 50 pc/hr, but this is enough to make them LOS F. It also should be noted that the approximate 2-miles from Depot Road to Route 101 will be (by 2026) just below the 1,700 pc/hr maximum; thus its predicted LOS E could easily slip to LOS F.

The TDM alternative, in theory, preserves LOS E by removing 350 vehicles per hour in the peak direction in the PM peak hour. However, 350 vehicles in the peak hour is approximately 15% of the expected 2026 traffic volume. Under ideal conditions in urban areas, the most that can be expected from use of TDM options is approximately 10% reduction. So in this rural area, with no existing transit, it would be difficult even to attain a 10% reduction. In this setting, TDM might consist of mostly car pooling and van pooling.

While TDM as a stand-alone alternative would not realistically address projected future capacity problems, it may be very useful in conjunction with other alternatives. As explained further in the Recommendations chapter, it makes sense to begin working on TDM in the near-term in order to be able to use it to its fullest potential in the long term.

b. 4-lane Alternatives (with signals)

The 4-lane alternative would require widening of the roadway for both northbound and southbound with 2-through lanes with a raised median. Given the high volume of traffic today and in the future, the roadway would have a raised median. The raised median would be wide enough to allow breaks for turn-arounds at quarter and half mile intervals depending on the long-term plan for the corridor. This option would include intersection improvements at Martin Road, Bolt Hill Road and Depot Road as described in section IV-1.

As indicated in Table IV-8, the average speed of the roadway would be increased from 23 mph (No-build) to 42 mph and the delay at the intersection would be reduced. Because this option would be 4-lanes it would no longer be considered a 2-lane rural roadway, the level of service for an urban street Class 1 would be LOS A/B. This alternative would be very expensive and would require further study under the Maine Sensible Transportation Act and NEPA process, which would require that all reasonable alternatives be considered before additional through lanes would be built.

c. 4-lane Alternative (with roundabouts)

The 4 intersections with roundabouts alternative is the same as the second option but instead of having signal intersections at Martin and Beech would have roundabouts. This option also had a roundabout at Bolt Hill Road. Roundabouts are very useful in access-managed corridors because they allow for U-turns. Depot Road was not analyzed for a roundabout because it is in a more rural section of the corridor.

As indicated in Table IV-8, the average speed is less than the 4 lane option with signals. The roadway level of service for an urban street Class 1 is also LOS A/B. As with the 4-lane option with signals, this option would have to go through the Maine Sensible Transportation Act and NEPA process.

B. South Berwick Village (Downtown)

The Downtown area considered is on Main Street between the Route 236 intersection and Portland Street. Different alternatives were evaluated, keeping in mind issues raised in the South Berwick's Comprehensive Plan, such as congestion, parking and strengthening the downtown businesses while preserving the aesthetics and character of the Village Area. Current AADT is over 20,000 vehicles per day, resulting in congestion in the area. Drivers have been known to avoid the congestion by using Highland Avenue, Norton Street and other local streets. Congestion lessens when the schools in the area are not in session.

1. Intersections (Short-Term Alternatives)

This section focuses on different short-term alternatives for the intersections of Main Street/Portland Street and Main Street/Route 236.

a. Portland Street

The Portland Street T-intersection is unsignalized but is controlled by a police officer during peak periods. Currently, the northbound approach to the intersection has a through lane and a right-turn lane, the southbound approach has one lane and the westbound approach (Portland Street) has a left-turn lane and right-turn lane. Several signal alternatives were analyzed: a signal with the existing lane configuration, a split phase signal, eliminating the southbound lefts onto Portland Street, and a southbound left-turn lane. Table IV-9 below shows the overall delay and the volume/capacity (V/C) ratio for the existing and future peak conditions.

Table IV-9: Portland Street Alternatives

Alternative	**2006 AM Peak Delay** (sec/veh)	**2026 AM Peak Delay** (sec/veh)	**2006 PM Peak Delay** (sec/veh)	**2026 PM Peak Delay** (sec/veh)
Police Officer	**20**	**100+**	**22**	**100+**
Signal (existing lane configuration)	**17** (V/C=0.70)	**32** (V/C=.85)	**25** (V/C=0.67)	**100+** (V/C=.96)
Split Phase Signal	**32** (V/C=0.85)	**93** (V/C=1.07)	**23** (V/C=0.91)	**100+** (V/C=1.12)
No Rte 236 SB Lefts	**14** (V/C=0.70)	**21** (V/C=0.85)	**10** (V/C=0.57)	**13** (V/C=0.72)
Rte 236 SB Left-Turn Lane	**14** (V/C=0.65)	**24** (V/C=0.82)	**16** (V/C=0.70)	**20** (V/C=0.81)

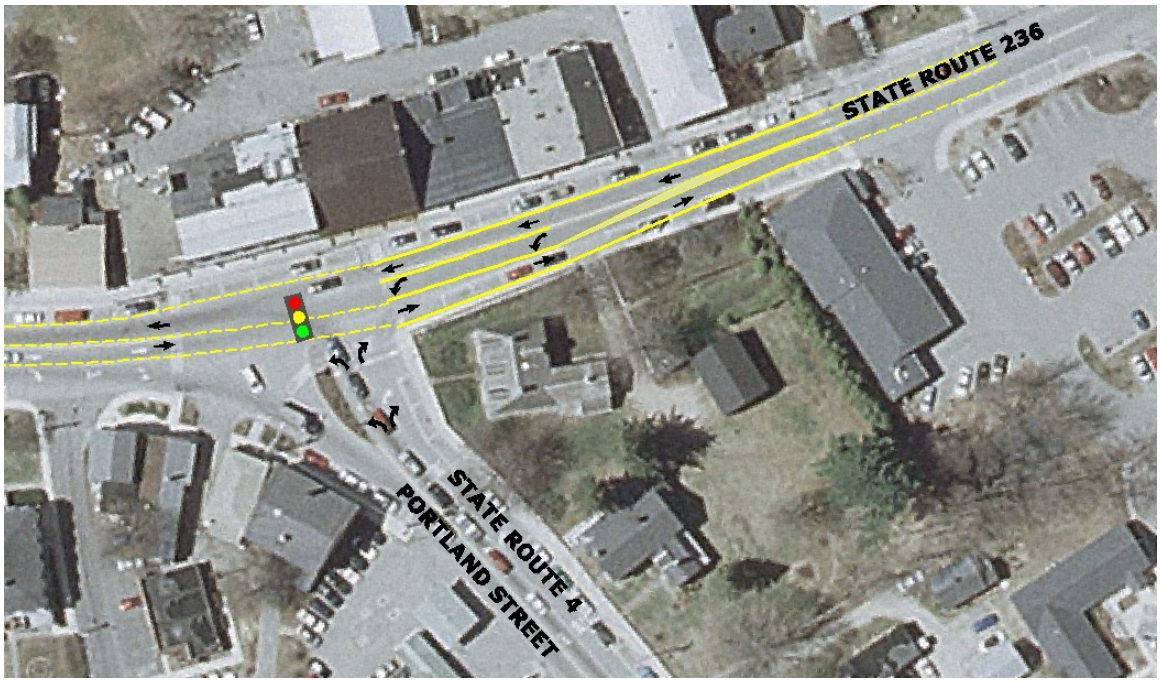
Adding a signal at the intersection of Portland Street will help vehicles exit Portland Street when the police officer is not present. As shown in Table IV-9, adding a signal during peak times doesn't improve the overall delay when compared to a police officer. It should be noted that the delay for a police officer is approximate. The police officer function was modeled in traffic simulation as a signal, but the simulation cannot replicate the officer's ability to continuously adapt timing in response to changing traffic situations. Any alternative that involves adding a signal would require the removal of approximately 7 parking spaces on the west side of Main Street.

One problem with keeping the existing lane configuration is that southbound vehicles turning left onto Portland Street block the southbound through vehicles, and thus create long southbound queues and delays. To solve the problem of southbound left turners (onto Portland Street), the alternative of a split phase signal was analyzed. With a split phase signal, southbound vehicles would be the only movement, then northbound vehicles, and then westbound vehicles (from Portland Street). This alternative increased the delay and the volume/capacity ratio. Another alternative was to prohibit Route 236 southbound traffic from turning left onto Portland Street. This alternative had the shortest delay and the lowest volume/cost ratio but would not be practical because of the

loss of continuity of State Route 236 to Route 4. (These vehicles would have to travel on village streets.)

The last alternative was to add a Route 236 southbound left-turn lane at the intersection. As shown in Figure IV-11, this alternative does allow storage for southbound left-turners and it doesn't impede southbound through traffic. This signal and lane configuration alternative would continue to work well in the future. However, it would mean losing an additional 10 parking spaces on the east side of Route 236.

Figure IV-11: Portland St. SB Left-Turn Lane Alternatives



b. Route 236/Main Street

The Route 236 / Main Street T-intersection is unsignalized, with the northbound Route 236 traffic controlled by a stop sign. The main problem at the intersection is in PM conditions, with long delays and queues for Route 236 northbound traffic. The Route 236 northbound approach has a right-turn lane and left-turn lane. The Rte 236/4 southbound approach has a left-turn lane and a through lane (to New.Hampshire), and the Route 4 approach (from New Hampshire) has one lane but is wide enough for a right-turn lane. Three alternatives were analyzed for this intersection: a signal, a roundabout, and a signal with free right turns. Table IV-10 below shows the overall delays and the volume/capacity ratio for existing and future peak traffic volumes.

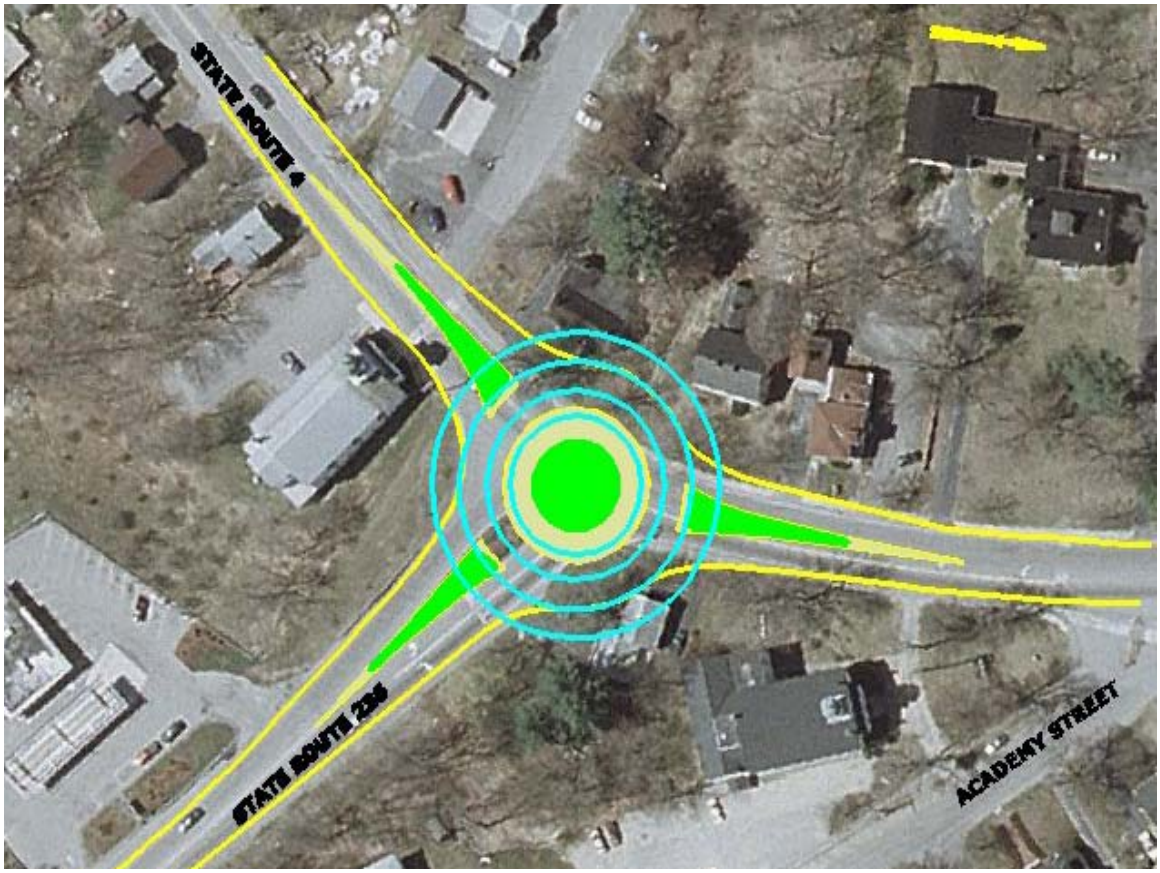
Table IV-10: Route 236/4 Alternatives

Alternative	2006 AM Peak Delay (sec/veh)	2026 AM Peak Delay (sec/veh)	2006 PM Peak Delay (sec/veh)	2026 PM Peak Delay (sec/veh)
Baseline	**8**	**26**	**44**	**100+**
Signal (existing lane configuration)	**17** (V/C=0.72)	**49** (V/C=0.93)	**38** (V/C=0.95)	**100+** (V/C=1.24)
Roundabout (2-lanes)	**7**	**14**	**8**	**16**
Signal (free rights-added NB lane)	**9** (V/C=0.75)	**18** (V/C=0.86)	**13** (V/C=0.70)	**43** (V/C=0.83)

The signal (with existing lane configuration) alternative has a volume to capacity ratio of 0.95 for existing pm conditions. During the am peak, the overall delay would increase if a signal were installed with the existing lane configuration.

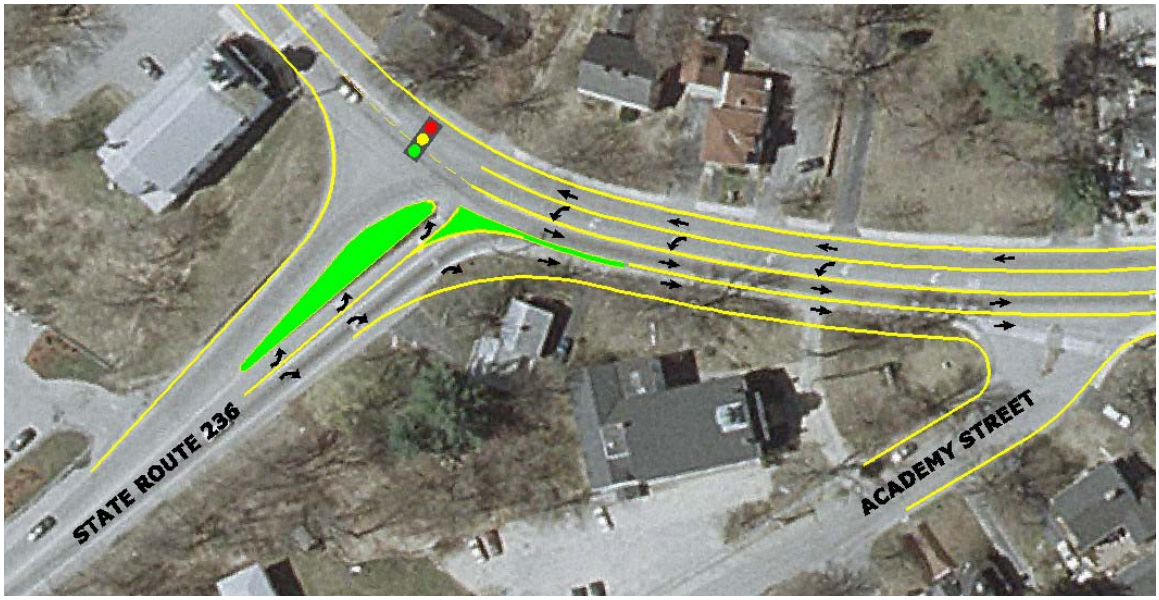
Roundabout alternatives were evaluated at the Town's request. As part of the roundabout alternative, to address the long delays and queues at Academy Street, Academy Street would be right turn in and right turn out only. Route 236 southbound lefts would not be able to enter Academy St., but instead would continue south to the roundabout, make a U-turn and then turn right into Academy Street. Vehicles exiting left out of Academy would instead go southbound on Academy to Vine Street., take Route 236 northbound to the roundabout and then turn left onto Route 4. Given the high volume of rights from Route 236 to Main Street, lefts from Main Street to Route 236, relocated Academy Street traffic, and future volumes, a 2-lane roundabout would be required. The roundabout alternative did improve the delay at the intersection, but as shown in figure IV-12, would have severe right of way impacts. The outer blue line shows the outside diameter of a 2-lane roundabout.

Figure IV-12: Route 236/4 Roundabout 2-Lane Alternative



The third alternative is a signalized intersection with free right turns. The northbound Route 236 right turning vehicles would not enter through the signalized intersection but would have their own lane to merge onto Main Street as shown in Figure IV-13. This alternative would reduce the pm delay and queues, and work well (43 sec/veh) in the future. The alternative would require widening and it would also have right of way impacts. However, for this to operate well the added lane would have to continue to Portland Street, to allow sufficient distance for traffic to merge and weave.

Figure IV-13: Route 236/4 Signalized Free Right Alternative



2. Roadway Segments Network (Long-Term Alternatives)

This section will look at different long-term alternatives evaluated to address the congestion in the South Berwick Downtown area. These long-term alternatives consider the Downtown area as a whole. Table IV-11 is a summary of the future 2026 PM peak for network level and for the intersections at Route 236/Main Street and at Main Street/ Portland Street.

Table IV-11: South Berwick Village Roadway Alternatives

	2026 PM No-Build	2026 PM Downtown (TSM)	2026 PM TDM (-700)	2026 PM Northern Bypass	2026 PM Southern Bypass
Simulation Model					
Travel Distance (Veh-Mi. Traveled)	2646	3512	2610	3420	3483
Travel Time (Veh-Hr. Traveled)	580.2	191	141.6	544.5	152.4
Average Speed (mph)	5	18	18	6	23
Total Delay (vehicle hours)	494*	78	58	430**	43
Intersections					
Main / Portland St. Delay (sec/veh)	100+	20	80	6	11
Rte. 236 / Main St. Delay (sec/veh)	100+	43	19	100+	22
Key:	Signalized	Unsignalized			

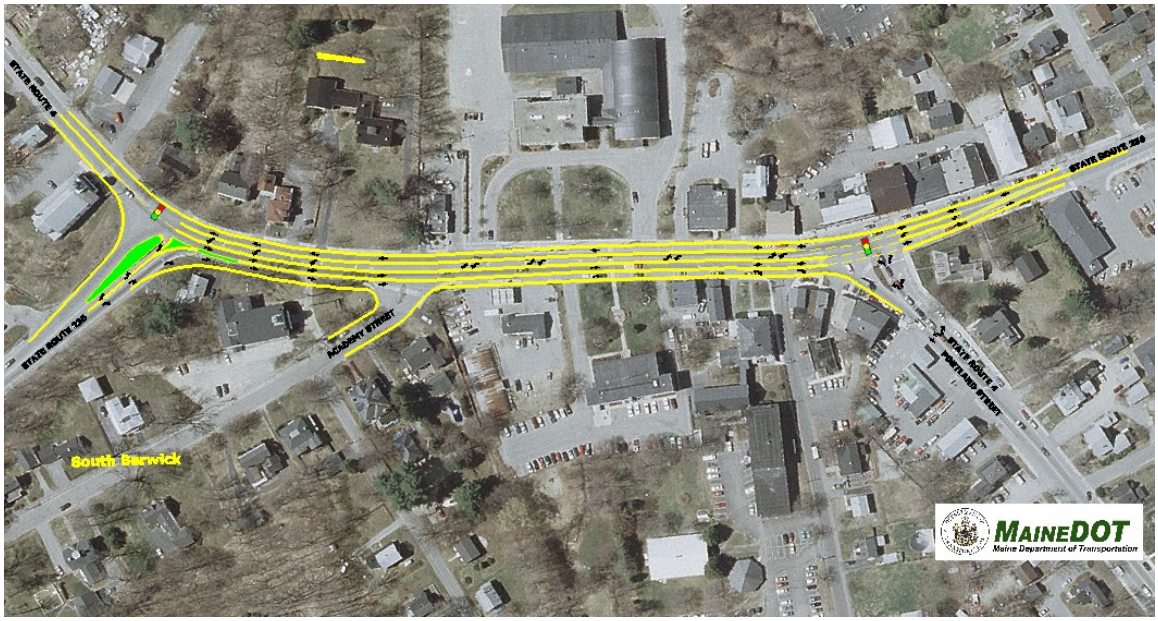
Note: Taken from SimTraffic (average of 5 runs)
* Not all future design hour vehicles (649) are able to enter network due to capacity constraints.
** Not all future design hour vehicles (614) are able to enter network due to capacity constraints.

a. Downtown Option (TSM)

The downtown option would widen Main Street to accommodate future traffic and provide for a reasonable level of service. It is based upon the intersection alternatives discussed in the previous section. As shown in figure IV-14, this includes the free right turns at the intersection of Route 236 and a southbound left-turn lane at the Portland Street intersection. Main Street between these two intersections would include two northbound lanes, and one southbound lane, while maintaining the two-way-left-turn lane (TWLTL) and the left-turn lane at Rte 236.

This option would reduce the delays at both Route 236/Main Street and at Main/Portland Street, from 100+ seconds to 43 seconds and 20 seconds, respectively (see Table IV-11). However, this option would require widening that would affect the aesthetics and character of the Downtown Area. In addition, over 40 on-street parking spaces would be removed, which would leave virtually no on-street parking on Main Street. Off-street parking could be created to replace the loss of on-street parking.

Figure IV-14: Downtown Option



b. Transportation Demand Management Option

The transportation demand management (TDM) option is the use of low-cost actions to modify travel behavior by encouraging people to share rides, telecommute, use transit, or change their travel route. This option simply analyzed how many vehicles would need to be removed from the peak direction in the future to have a LOS E. Approximately 700 vehicles (in the peak direction in the PM peak hour) would need to be removed from the network. The 700 vehicles would come from the northbound right turning traffic from Route 236 to Main St and the northbound vehicles on Route 4 (from New Hampshire).

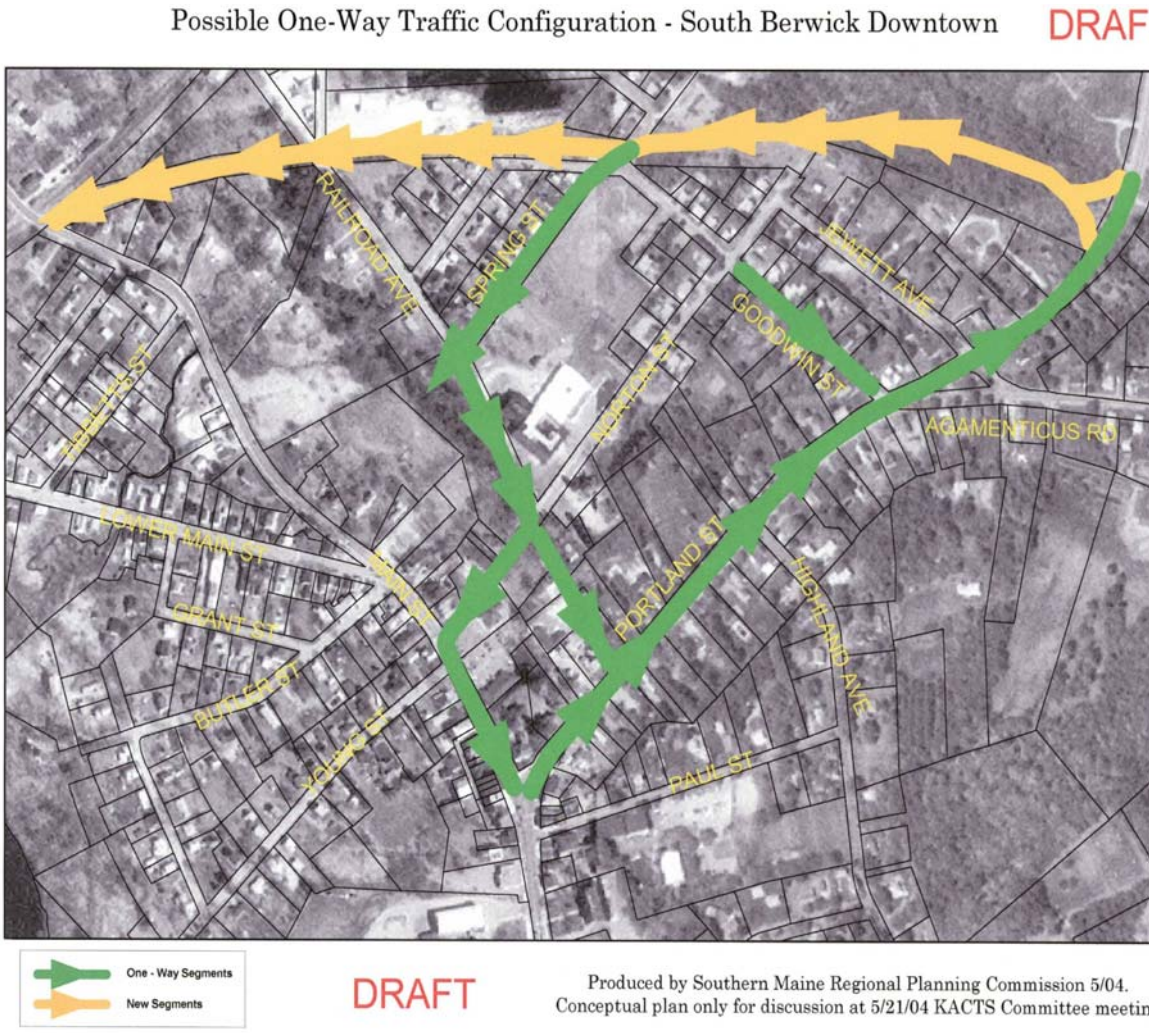
This option, in theory, would reduce the delays at both Rte. 236/Main Street and at Main/Portland Street from 100+ seconds to 19 seconds and to 80 seconds, respectively. However, 700 vehicles per hour is approximately 30% of the expected 2026 traffic volume. As explained in Section IV-2a, a 10% reduction is the most that can be expected, even in an urban area. Therefore, TDM is not a viable stand-alone option for future conditions.

c. Northern Bypass Option

The northern bypass option would convert Portland Street to one-way flow from the intersection of Main Street to east of Agamenticus Road. As shown in Figure IV-15, Route 236 northbound traffic would turn right at Portland Street then turn left at the bypass and turn right to continue onto Route 236. Route 4 southbound vehicles would turn right onto the bypass, continue the length of the bypass, and then turn left (southbound) on Route 236.

This option greatly reduced the delay at Portland Street intersection but does not solve the long-term delays at the Route 236/Main Street intersection. This option also greatly increased the vehicle*hours traveled and total delay compared to the other alternatives. The northern bypass option would have right of way, neighborhood and other impacts, and would require study under the National Environmental Policy Act (NEPA) and Sensible Transportation Policy Act (STPA) processes.

Figure IV-15: Northern Bypass Option



d. Southern Bypass Option

The southern bypass option would reduce traffic on Main Street by redirecting the traffic that is traveling northbound on Route 236 to Portland Street and the reverse traffic from Portland Street to Route 236 southbound. For purposes of this evaluation, it was estimated that 7,000 of the 20,000 AADT would be re-directed to the southern bypass. This is approximately 60 percent of the rights and lefts at Route 236/Main Street and Main/Portland Street. This estimate is based solely on the AADT volumes for the different roadways. A detailed origin/destination study would need to be done to confirm these numbers.

As shown in Table IV-11, this option had the least amount of overall delay with significant improvements at the two intersections compared to the other options. This option would not require any changes to Main Street or to the Route 236/Main Street intersection. Even with the southern bypass, long queues (during the 2026 PM peak hour) may occur at the Portland Street approach so the Portland Street intersection may need to be signalized for local traffic. The Southern Bypass option would not change the lane and parking configuration in the downtown area, but there would be impacts at the location of the bypass. The southern bypass option would have right of way, neighborhood and other impacts, and would require study under the National Environmental Policy Act (NEPA) and Sensible Transportation Policy Act (STPA) processes.

Figure IV-16: Southern Bypass Option

Of the four options considered for the South Berwick Village, it appears that only the downtown option and the southern bypass would be effective in reducing congestion. The downtown option would affect the character of the downtown area. The southern bypass would have land impacts and would require further study under the NEPA and STPA.

C. Access Management

Access management, although not studied in detail for this corridor, is a technique that would be helpful in preserving the Route 236 Corridor. Access management principles, applied to Route 236 or any other arterial corridor, will help protect the safety and efficiency provided by post and future corridor investments. This section describes several access management techniques that could be applied to this corridor. Although not part of the scope of work for this study, some background information and definitions of terms is provided below:

1. Access Management (definitions of and reasons for)

> "Access management is the systematic control of the location, spacing, design, and operation of driveways, median openings, interchanges, and street connections to a roadway. It also involves roadway design applications, such as median treatment and auxiliary lanes, and the appropriate spacing of traffic signals. The purpose of access management is to provide vehicular access to land development in a manner that preserves the safety and efficiency of the transportation system.[1]" Many of the 40,000 fatalities and nearly 3 million injuries from motor vehicle crashes in the United States each year could have been prevented through access management.

2. Service Road:

A service road is a public or private road, auxiliary to an arterial roadway that provides access to parcels adjacent to the arterial. Hanscom Road in Eliot could be utilized as a service road for properties adjacent to Route 236.

3. Nontraversable (Raised) Median:

A "raised" (nontraversable) median is a divider that separates opposing traffic streams and is designed to actively discourage or prevent vehicles from crossing into or over the opposing lane. According to the Access Management Manual, raised medians have the following advantages:

- They physically separate vehicles traveling in opposite directions and can be designed to greatly reduce the potential for head-on collisions.
- They provide specific, clearly identifiable locations at which left turns can be made.
- They can be built with left-turn median openings, which provide space for deceleration, and safe "storage" free of the through traffic lanes.

[1] Transportation Research Board of the National Academies, Access Management Manual, Committee on Access Management, Washington, D.C., 2003.

- They permit design of directional median openings, which are commonly used for left turns and U-turns.
- They reduce the number of left-turn vehicular conflicts with pedestrians and bicyclists.
- They provide a suitable location for refuge areas for pedestrian crossing.
- They result in less delay to through vehicles than a two-way left-turn lane (TWLTL)
- Roadways with non-traversable medians are safer than undivided roadways or those with continuous TWLTL, because the median allows fewer opportunities for conflict and erratic movements. In urban areas, undivided highways had 9.0 accidents per million vehicle miles as compared with 6.9 for TWLTLs and 5.6 for nontraversable medians.[2] This represents a 38 percent difference in the crash rate between undivided highways and non-traversable medians.

  An example of effectiveness of a raised medium is Western Avenue in Augusta. This four-lane roadway has two adjacent sections: one with a raised island (0.25 miles) and the other undivided (0.22 miles). The 2003 AADT is 28,290 for these adjacent sections. In a three year period a total of 7 crashes were reported for the raised-island section vs. 31 crashes for the undivided section. Furthermore, injury crashes were much fewer for the raised-island section (1 vs.10).
- The number and complexity of conflicts are reduced within the functional area of an intersection. The length of turn bays at signalized intersections is based on the queue lengths for future volumes. The turn bays are also protected by raised islands. "Safety is enhanced, because through traffic is allowed to maneuver through the intersection without conflicts with turning vehicles that are leaving and entering the roadway, and intersection capacity is improved."

4. Signal Spacing

"Closely spaced or irregularly spaced traffic signals on arterial roadways result in frequent stops, unnecessary delay, increased fuel consumption, excessive vehicular emissions, and high crash locations. Alternatively, long and uniform signal spacing allows timing plans that can efficiently accommodate varying traffic conditions during peak and off-peak periods as well as adoption of a traffic control system as changes occur over time. Therefore selecting long and uniform signalized intersection spacing is an essential element in establishing access spacing standards"[3].

"Spacing of signals has a direct effect on roadway efficiency. The Colorado Access Demonstration Project concluded that ½ mile signal spacing could reduce vehicle-hour of delay by over 60% and vehicle-

[2] National Cooperative Highway Research Program (NCHRP) Project 3-52A, "Impacts of Access-Management Techniques." NCHRP Report 420, "Impacts of Access Management Techniques" (1999),

[3] Transportation Research Board of the National Academies, Access Management Manual, Committee on Access Management, Washington, D.C., 2003.

hour of travel by over 50%, compared with signals at ¼ -mile intervals with full median openings between signals. These reductions in vehicle-hours are expected even though the hourly volume entering the signalized intersections is higher at the ½-mile spacing. Other analyses conclude that a four-lane divided arterial having signals at uniform ½ mile signal spacing could carry the same volume of traffic as a six-lane divided roadway with a ¼ mile spacing."[4]

"Variables involved in the planning, design, and operation of signalized arterial roadways are reflected in the relationship between speed, cycle length, and signal spacing. A key objective of access management is to balance these elements to yield maximum progression bandwidths in both travel directions at desired travel speeds. Establishing a long signal spacing allows more flexibility for peak and off-peak conditions. For example, a 90 second cycle for ½-mile spacing will allow efficient traffic progression at 40 mph where as a ¼-mile spacing has a progressive at 20 mph and 1/8-mile spacing has a progressive at 10 mph. "A uniform signal spacing of ½ mile provides for efficient signal progression at speeds of 35 mph to 45 mph along major suburban arterials. At these speeds, maximum flows rates are achieved and fuel consumption and emissions are kept to a minimum." [5]

5. Driveways

Access points, such as driveways, introduce conflicts and friction, i.e., a slowing, in the traffic stream. Vehicles entering and leaving the main roadway often slow the through traffic, and and increase the accident potential due to the difference in speed between through and turning traffic. Three important factors to be considered in driveway are design, location and spacing.

The appropriate location of access points is critical to driver safety and roadway efficiency. Providing adequate sight distance, avoiding connections in the functional area of intersections and interchanges, and observing the hierarchy of roadways and intersections are all important concepts in access locations. Along with driveway location, spacing is another major access issue. The spacing between driveways affects both congestion and safety. According to FHWA's Benefits of Access Management,

'"Large numbers of driveways increase the potential conflicts on the road. Fewer driveways spaced further apart allow for more orderly merging of traffic and present fewer challenges to drivers."

"A research synthesis found that roadway speeds were reduced an average of 2.5 miles per hour for every 10 access points per mile, up to a maximum of a 10 mph reduction (at 40 access points per mile). With

[4] Ibid, page144
[5] Ibid, page146

> higher numbers of access points, congestion will increase significantly". "Many studies over the past 40 years have shown that accident rates rise with greater frequency of driveways and intersections. Roughly 240 roadway segments, involving more than 37,500 accidents, were analyzed in detail. Accident rates were derived for various spacings and median types. For example, a segment with 60 access points per mile would be expected to have an accident rate 3 times higher than a segment with 10 access points per mile. In general, each additional access point per mile increases the accident rate by about 4 percent."[6]

It is important to remember that the assumption for future 2026 conditions does not include new driveways, signals or improvements to the roadway. Any master planning for future development along the Route 236 Corridor should keep general access management principles in mind.

[6] National Cooperative Highway Research Program (NCHRP) Project 3-52A, "Impacts of Access-Management Techniques." NCHRP Report 420, "Impacts of Access Management Techniques" (1999),

V. Recommendations

This chapter presents the transportation improvement recommendations for the Study Area. The recommendations are divided into three parts: improvements completed, near-term recommendations and long-term recommendations. The overall purpose of these measures is to promote safe and efficient movement of traffic.

While the recommended actions in this chapter respond to the projected mobility needs of the Route 236 corridor described in Chapter 3, Future Conditions, the uncertainty of external factors could affect future traffic growth and the scope of the recommendations necessary to address this growth. External factors such as demographic trends, energy costs, economic growth, and new technology will need to be monitored, and recommendations for the Route 236 corridor will need to be reviewed and adjusted as needed.

A. Improvements Completed

1. Route 91 Intersection

Problem: The AM Peak hour has over 200 southbound vehicles turning left onto Route 91, enough to warrant a left-turn lane. Southbound vehicles on Route 236 would often ride on the wrong side of the road prior to turning left onto Route 91 (perhaps out of fear of being rear-ended by Route 236 SB through traffic). The skew of the intersection makes it a wide intersection. The intersection is a high crash location and will have long delays and a poor level of service in the future.

Recommended Action and Implementation: The recommended action performed was to restripe the intersection as shown in Figure V-1 to create a southbound left-turn lane. With support for the recommendation from the Corridor Advisory Committee, MaineDOT completed the work in the fall of 2007. A southbound left-turn lane was striped, and northbound traffic was shifted (by a striped island) to provide room. The added left-turn lane was done using existing pavement while maintaining a minimum 5-foot shoulder for bicyclists.

Figure V-1: Route 91 Restriping

Benefits:

- Adding a southbound left-turn lane will improve safety by reducing southbound rear end crashes, involving left-turn vehicles.
- The restriping and new signage of the intersection provides better guidance through the intersection.

Issues and constraints:

- The restriping of the intersection does not address the long-term problem of long delays and poor level of service.
- The restriping does not address the skewed intersection or the minor street left-turn movement.

Implementation:

During the Corridor Advisory Committee meetings, the Committee supported the recommendation of restriping the Route 91 intersection to create a southbound left-turn lane. A Maine DOT striping crew completed the work in the fall of 2007.

B. Near-Term Recommendations

Near-term recommendations include intersection improvement projects and actions that require additional studies. Table V-1 presents a summary of the near-term projects in priority order. The priority of the intersection projects is based upon benefit/cost ratio. The higher the benefit/cost ratio, the higher the priority of the project. Only the first two projects have a current benefit/cost ratio greater than 1.0. The other recommended projects will have a benefit/cost ratio greater than 1.0 in future years. Typically, proposed projects with a benefit/cost ratio less than 1.0 do not receive priority for funding.

Table V-1: Near-Term Recommendations Summary

Intersection Location/Study Area	Municipality	Priority
Martin / Stevenson (Signal Modification)	**Kittery**	**High**
Depot Road (Additional Lanes)	**Eliot**	**High**
***South Berwick Feasibility Study**	**South Berwick**	**High**
****** Eliot Route 236 Master Plan**	**Eliot**	**High**
Travel Demand Management Study	**Corridor Wide**	**High**
Route 91 (Additional Lanes)	**South Berwick**	**Medium**
Martin / Stevenson (Additional Lanes)	**Kittery**	**Medium**
Route 101 (Additional Lanes)	**Eliot**	**Medium**
Bolt Hill Road (Left-Turn Lanes)	**Eliot**	**Low**

*** KACTS is in the process of funding Feasibility Study**

****Maine DOT will work with KACTS to determine a scope of work, and to locate a funding source for this Plan.**

High Priority Projects

1. Martin/Stevenson Rd. Signal Modification - Kittery

Problem: The signalized intersection of Martin and Stevenson Road has left-turn lanes on the main line but does not have protected left-turn signal phases. The intersection has experienced a high number of left-turn crashes.

Recommended Action: Provide additional signal heads to allow for a protected left-turn movement (phase).

Benefits:

- According to the FHWA Report No SA-07-015, adding a protected left-turn phase will reduce left-turn crashes by 46 percent.
- The benefit/cost ratio for installing a protected left-turn signal is over 23.

Issues and constraints:

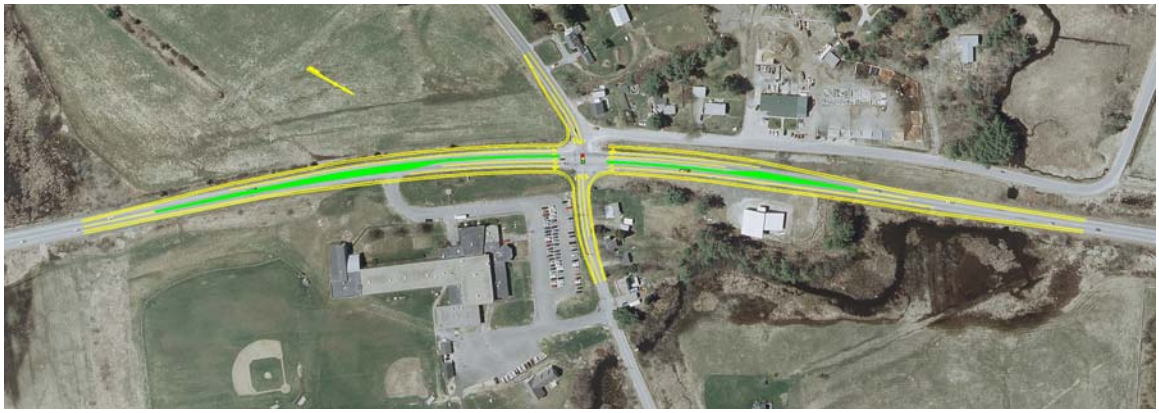
- The estimated cost for this project has been reduced based on a commitment by the Town of Kittery to install the signals themselves.
- The cost of the additional signal assumes that it can be added to the control panel without replacing the traffic cabinet.

2. Depot Road - Eliot

Problem: The signalized intersection of Depot Road often experiences long queues and delays, especially in the northbound direction in the PM peak. Another problem with the intersection is the close proximity of Cedar Road. Given the expected future volumes, the intersection is projected to have a LOS F by 2026.

Recommended Action: The recommended action is to construct additional lanes as shown in Figure V-2. The project would construct protected left-turn lanes on the mainline and two-through lanes (400 feet upstream of the intersection and 1000 feet downstream) in each direction on the mainline. In addition, left-turn lanes would be added on both sides of Depot Road.

Figure V-2: Depot Road – Intersection Improvement



Benefits:

- Additional lanes at the intersection will reduce both current (31 sec/veh to 9 sec/veh) and future delays (100+ sec/veh to 21 sec/veh).
- The 2026 PM level of service will improve from LOS F to LOS C.
- Raised islands will protect left-turn traffic from through traffic.
- The benefit/cost ratio for constructing additional lanes is 2.1.

Issues and constraints:

- Raised islands will improve safety, but will limit access to adjacent property at the intersection thereby restricting movements to the school and other property near the intersection.
- A traffic signal at Cedar Road would likely create more problems than it would solve. Given the close proximity of Cedar Road to the intersection, traffic movement at the Cedar/Depot Road intersection will need to be monitored. If vehicles continually block the Depot/Cedar intersection then a jug handle should be constructed on Depot Road west of Cedar Road, and Cedar Road should be right out only.
- By shifting Route 236 westward, the turning radius from Route 236 southbound onto Cedar Road will be decreased, especially for large vehicles. If this should be a design issue, then the jug handle should be installed to accommodate large vehicles.
- There are likely to be right of way and environmental impacts.
- Traffic flow into and out of the school would have to be addressed.

3. South Berwick Village Feasibility Study

Problem: The South Berwick Village area currently has an AADT of over 20,000 per day. The high volume of traffic results in congestion, especially during AM and PM peak hours. The Study looked at several different alternatives at the conceptual level for future conditions.

Evaluations concluded that re-configuration of the existing system within the Downtown South Berwick area (see Downtown Option) could accommodate existing and future conditions. However, the impacts to the historically significant village area would be substantial and may be unacceptable to the community. A southern bypass option could be effective also, but further work is needed to define this alternative (e.g. location, estimated costs, etc.) and determine its feasibility.

Recommended Action: The recommended action is to support the KACTS South Berwick Feasibility Study.

Benefits:

- The Feasibility Study will evaluate in more detail the different alternatives that include environmental, social, and economic resources.
- It will communicate these details to stakeholders and gather their input.
- Determine beneficial long-term solution

Issues and constraints:

- The Feasibility Study may be expensive and limited funds are available for new transportation studies or construction.

4. Eliot Route 236 Master Plan

Problem: The Route 236 Corridor in the Eliot area has a current AADT of over 18,000 per day with a 2026 projected AADT of over 26,000 vehicles per day. Currently, the roadway LOS is E, and in sections in the future it is expected to have a LOS F. The Route 236 Corridor through Eliot is classified as “retrograde arterial”. A retrograde arterial is a mobility arterial where the access related crash-per mile rate exceeded the 1999 statewide average for arterials of the same-posted speed limit. Retrograde arterials have the highest access management standards. Unplanned public and commercial development on Route 236 impair the free flow of traffic and decrease safety, requiring taxpayers to fund expensive remedies.

Recommended Action: The recommended action is for the Town to develop a Master Plan to help in preserving the mobility of the corridor.

Benefits:

- A Master Plan would identify desireable land uses.
- It would use Access Management principles to preserve safety and efficiency as the corridor is developed.

Issues and constraints:

- The Master Plan would have to consider land owners, town vision, mobility and safety of the corridor.
- The Master Plan would work in conjunction with other alternatives.

5. Transportation Demand Management Study

Problem: The Route 236 Corridor is a commuter route with high am and pm peak directional volumes. Most of the roadway segments currently have LOS E, and LOS F is projected for some segments of the corridor in the future due to capacity constraints. Given the high cost of adding new capacity, other alternatives must be considered for addressing congestion. The Route 236 Corridor likely needs a multi-pronged solution. With its relatively low cost, TDM is almost certain to be part of any solution proposed. At this point it is unknown what level of volume reduction is achievable through TDM.

Recommended Action:

- Evaluate the potential for transportation demand management (TDM) actions in the Route 236 Corridor.
- Make recommendations on implementing cost-effective TDM options, e.g. van pools, car pools.

Benefits:

- TDM can be a low-cost, low-impact way of reducing congestion.
- Knowing with more certainty the percentage reduction achievable through TDM is essential in determining the mix of actions needed to make a multi-pronged approach effective.

Issues and constraints:

- Historically, it has been difficult to reduce travel in single-occupant vehicles. However, higher gasoline prices could provide greater incentives for ridesharing.
- This is a rural area with no transit currently in place.

Medium Priority Projects

6. Route 91 Intersection - South Berwick

Problem: Given the projected growth in corridor traffic, the intersection is projected to have a LOS F in the future. The intersection is skewed and left-turners on the side street turn left prior to the main intersection, which can queue out onto the side street and are at risk of being struck by traffic turning left off of Route 236.

Recommended Action: The recommended action for the intersection is shown in Figure V-3. As shown, the intersection would be signalized (when warranted). The recommended project would construct protected left-turn lanes (raised island) on the mainline and two-through lanes (400 feet upstream of the intersection and 1000 feet downstream) in each direction on the mainline. Left-turn lanes would also be constructed for the minor streets. The triangular raised islands on the side streets would be only for traffic turning right off the mainline.

Figure V-3: Route 91 – Intersection Improvement

Benefits:

- Adding lanes at the intersection will reduce 2026 PM delay from 100+ sec/veh to 32 sec/veh.
- The 2026 PM level of service will improve from LOS F to LOS C.
- Left-turn traffic from the minor street will be brought into the main intersection and eliminate the potential for queued left-turners being struck by traffic turning left off the mainline.
- Raised islands which will protect left-turn traffic from through traffic.

Issues and constraints:

- Several alternatives were evaluated for long-term solutions. The recommended concept has the least amount of right of way and utility impact.
- The recommended alternative does not rectify the skew of the intersection; doing that would involve the acquisition of properties and likely have major impacts to those properties.
- There may be environmental impacts south of the intersection, i.e. wetlands.
- Raised islands will improve safety and limit access to adjacent property at the intersection thereby restricting movements to properties near the intersection.

7. Route 101 Intersection - Eliot

Problem: Given the projected growth in corridor traffic, the intersection is expected to have a LOS F in the future. The skewed intersection is a high crash location.

Recommended Action: The recommended action for the intersection is shown in Figure V-4. The project would construct protected left-turn lanes (raised island) on the mainline and two through lanes (400 feet upstream of the intersection and 1000 feet downstream) in each direction on the mainline. The intersection would have a southbound raised island (currently only in the northbound approach) that will protect the left-turn traffic. In addition, the project would provide signal heads for both northbound and southbound left-turn movements (phases).

Figure V-4: Route 101 – Intersection Improvement

Benefits:

- Adding lanes at the intersection will reduce 2026 PM delay from 100+ sec/veh to 32 sec/veh.
- The 2026 PM level of service will improve from LOS F to LOS C.
- The raised islands will provide protection for left-turning traffic from through traffic.

Issues and constraints:

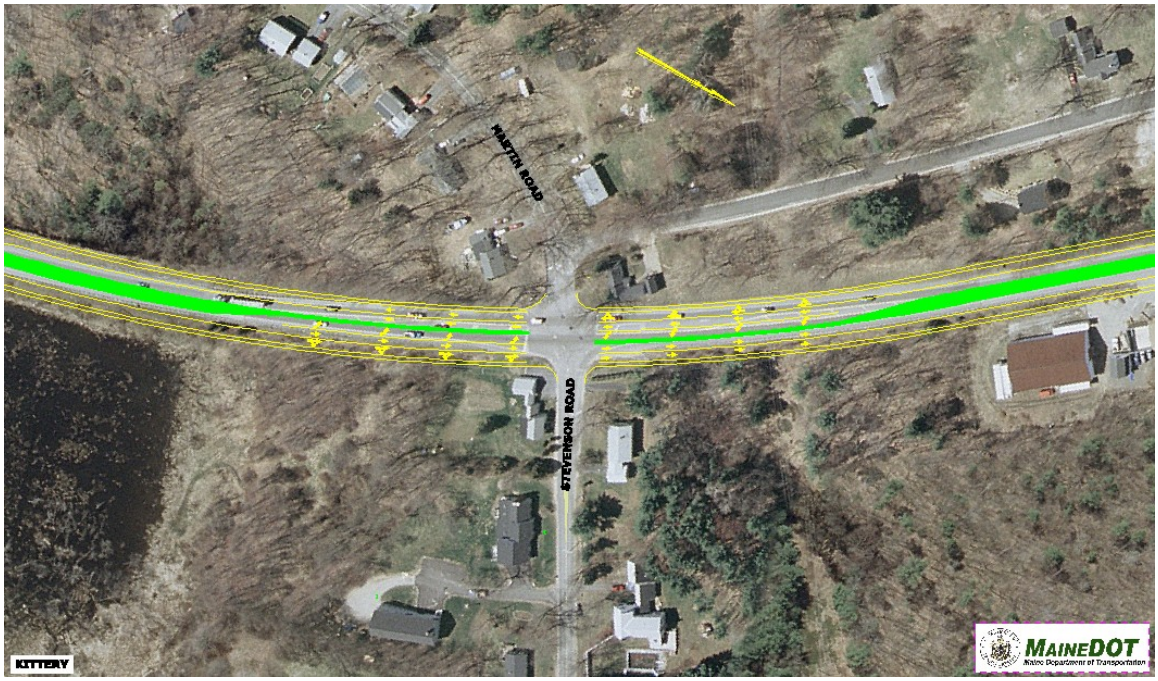
- A restaurant business in the southwest quadrant is very close to Route 236, so the mainline of Route 236 would most likely be widened on the east side. Widening on the east side most likely would require lowering the grade for Route 101 westbound.
- Gas lines located along the roadway and near the intersection could be impacted.
- The recommended alternative does not rectify the skew of the intersection; doing that would involve the acquisition of properties and likely have major impacts to those properties.
- Raised islands will improve safety and limit access to adjacent properties at the intersection, thereby restricting movements near the intersection.

8. Martin Road / Stevenson Road - Kittery

Problem: Given the projected growth in corridor traffic, the intersection is projected to have a LOS F in the future.

Recommended Action: The recommended action for the intersection is shown in Figure V-5. The project would construct protected left-turn lanes (raised island) on the mainline and two through lanes in each direction on the mainline. The Route 236 4-lane section in Kittery ends at Dana Road, 2000 feet south of Martin Road and because it would not make sense to go from 4-lane to 2-lanes and then 4-lanes again at the intersection. For continuity in the number of lanes, it would be proposed to extend the 4 existing lanes to Martin Road. North of Martin Road, there would be two southbound through lanes 400 feet upstream and two northbound through lanes 1,000 feet downstream of the intersection.

Figure V-5: Martin Road / Stevenson Road – Intersection Improvement



Benefits:

- Adding lanes at the intersection will reduce 2026 PM delay from 100+ sec/veh to 35 sec/veh.
- The 2026 PM level of service will improve from LOS F to LOS C.

Issues and constraints:

- Houses are located in the northwest and southeast quadrants and are close to Route 236. Widening of the roadway will bring the roadway closer to adjacent houses and may require Right of Way acquisitions.
- There may be environmental impacts south of the Martin/ Stevenson intersection.

Low Priority

9. Bolt Hill Road - Eliot

Problem: The intersection is a high crash location. Although the improvements would reduce the number of expected crashes, the intersection does not currently meet warrants for a signal or left-turn lanes. The benefit to cost ratio for installing a protected left-turn lane is 0.14.

Recommended Action: The proposed improvement for the intersection is shown in Figure V-6. As shown, it would construct protected left-turn lanes (raised island) on the mainline. Monitor the crash experience at the intersection after the flashing beacon is operational. If the intersection persists as a high crash location or if congestion at the intersection increases, reconsider the economic feasibility of the proposed improvement.

Figure V-6: Bolt Hill Road – Intersection Improvement

Benefits:

- Adding protected left-lanes will reduce the expected crashes at the intersection by 48%.

Issues and constraints:

- The existing benefit to cost ratio is only 0.14.
- Unlikely funding candidate at this time.

C. Long-Term Recommendations

The near-term improvements focused mostly on intersection improvement projects that would improve traffic flow and safety at intersections, and would result in improved overall traffic flow to some extent. The long-term recommendations focus on the roadway segments between the intersections.

The future 2026 conditions show that the roadway segments between Dana Road and Depot Road will be LOS F and the roadway segment between Depot Road and Route 101 will be close to LOS F. While the intersection improvement projects will reduce congestion at bottle necks (at the signalized intersection), the roadway itself will not have the capacity to handle projected future volumes.

The recommendation to improve the roadway segments is to develop a Master Plan that will incorporate Access Management techniques, reduce the number of vehicles through TDM measures and construct the additional lanes at the intersections (as described in the near-term improvements) along the corridor. If these measures are unable to address the roadway segments, then it is recommended to develop a detailed feasibility evaluation of added through lanes on Route 236 between Dana Road and Route 101.

1. Dana Road to Route 101 Intersection - Eliot

Problem: Given the projected growth in corridor traffic, the roadway segment between Dana and Depot Road is projected to have a LOS F in the future and the roadway segment between Depot Road and Route 101 is close to LOS F.

Recommended Action: The recommended action for this section of the corridor is to evaluate the feasibility of an increase of the number of travel lanes between Dana Road and Route 101 from two lanes to four lanes with a raised median.

Benefits:

- Adding capacity to the roadway will improve the level of service and reduce delays.
- A raised median will improve safety and mobility

Issues and constraints:

- Added through lanes will be expensive
- Both the STPA and NEPA processes would be required before through lanes could be added.
- There would be Right of Way and environmental impacts with widening.

Appendix I Speed and Headway Summary NW/O Bolt Hill Rd

Route 236 Northbound NW/O Bolt Hill Rd

Hour	Hour Ending	Number of Vehicles	85th Percentile Speed (mph)	Average Speed (mph)	Median Speed (mph)	Mode Speed (mph)	Max Speed (mph)	Hour Ending	0 to 2.00	2.01 to 3	3.01 to 5	>5	% Time Delay (<5 sec old HCM)	Volume 0 to 5 sec	% 0 to 2.00	% 2.01 to 3	% 3.01 to 5	% > 5	% 0 to 3	% 0 to 5
12:00 to 1:00 am	1	117	49	45	45	45	56	1	10	9	8	90	23.1%	27	8.5%	7.7%	6.8%	76.9%	16.2%	23.1%
1:00 to 2:00 am	2	53	50	46	45	44	59	2	4	4	3	42	20.8%	11	7.5%	7.5%	5.7%	79.2%	15.1%	20.8%
2:00 to 3:00 am	3	18	51	46	45	44	57	3	0	0	0	18	0.0%	0	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
3:00 to 4:00 am	4	17	52	46	47	47	57	4	1	0	0	16	5.9%	1	5.9%	0.0%	0.0%	94.1%	5.9%	5.9%
4:00 to 5:00 am	5	25	53	47	46	46	56	5	2	0	1	22	12.0%	3	8.0%	0.0%	4.0%	88.0%	8.0%	12.0%
5:00 to 6:00 am	6	87	52	48	47	46	62	6 AM	2	4	3	78	10.3%	9	2.3%	4.6%	3.4%	89.7%	6.9%	10.3%
6:00 to 7:00 am	7	224	51	44	44	48	62	7	49	27	23	125	44.2%	99	21.9%	12.1%	10.3%	55.8%	33.9%	44.2%
7:00 to 8:00 am	8	326	51	47	47	47	61	8	82	51	35	158	51.5%	168	25.2%	15.6%	10.7%	48.5%	40.8%	51.5%
8:00 to 9:00 am	9	333	50	46	47	47	61	9	66	40	48	179	46.2%	154	19.8%	12.0%	14.4%	53.8%	31.8%	46.2%
9:00 to 10:00 am	10	354	51	47	47	45	68	10	83	42	49	180	49.2%	174	23.4%	11.9%	13.8%	50.8%	35.3%	49.2%
10:00 to 11:00 am	11	355	51	46	46	45	59	11	86	56	51	162	54.4%	193	24.2%	15.8%	14.4%	45.6%	40.0%	54.4%
11:00 to 12:00 noon	12	482	50	46	45	47	61	Noon	154	65	63	200	58.5%	282	32.0%	13.5%	13.1%	41.5%	45.4%	58.5%
12:00 to 1:00 pm	13	498	51	47	47	47	59	1	146	83	74	195	60.8%	303	29.3%	16.7%	14.9%	39.2%	46.0%	60.8%
1:00 to 2:00 pm	14	485	51	46	47	47	59	2	148	73	75	189	61.0%	296	30.5%	15.1%	15.5%	39.0%	45.6%	61.0%
2:00 to 3:00 pm	15	612	50	46	46	47	59	3	222	96	97	197	67.8%	415	36.3%	15.7%	15.8%	32.2%	52.0%	67.8%
3:00 to 4:00 pm	16	1006	50	45	46	45	60	4	437	227	175	167	83.4%	839	43.4%	22.6%	17.4%	16.6%	66.0%	83.4%
4:00 to 5:00 pm	17	1148	49	45	46	47	59	5	519	310	169	150	86.9%	998	45.2%	27.0%	14.7%	13.1%	72.2%	86.9%
5:00 to 6:00 pm	18	1042	50	46	46	47	63	6 PM	490	218	171	163	84.4%	879	47.0%	20.9%	16.4%	15.6%	67.9%	84.4%
6:00 to 7:00 pm	19	598	52	47	48	47	61	7	225	102	69	202	66.2%	396	37.6%	17.1%	11.5%	33.8%	54.7%	66.2%
7:00 to 8:00 pm	20	401	52	48	48	50	60	8	120	52	37	192	52.1%	209	29.9%	13.0%	9.2%	47.9%	42.9%	52.1%
8:00 to 9:00 pm	21	336	51	46	46	50	64	9	94	37	31	174	48.2%	162	28.0%	11.0%	9.2%	51.8%	39.0%	48.2%
9:00 to 10:00 pm	22	303	51	47	47	47	61	10	70	36	37	159	47.2%	143	23.1%	11.9%	12.2%	52.5%	35.0%	47.2%
10:00 to 11:00 pm	23	152	51	47	47	50	57	11	28	12	9	103	32.2%	49	18.4%	7.9%	5.9%	67.8%	26.3%	32.2%
11:00 to 12:00 pm	24	134	52	47	47	50	57	Midnight	19	6	9	100	25.4%	34	14.2%	4.5%	6.7%	74.6%	18.7%	25.4%
24 Hour Average		9106		46.3										24 Hr Ave	23.4%	11.8%	10.3%	54.5%		

Route 236 Southbound NW/O Bolt Hill Rd

Hour	Hour Ending	Number of Vehicles	85th Percentile Speed (mph)	Average Speed (mph)	Median Speed (mph)	Mode Speed (mph)	Max Speed (mph)	Hour Ending	0 to 2.00	2.01 to 3	3.01 to 5	>5	% Time Delay (<5 sec old HCM)	Volume 0 to 5 sec	% 0 to 2.00	% 2.01 to 3	% 3.01 to 5	% > 5	% 0 to 3	% 0 to 5
12:00 to 1:00 am	1	26	50	45	45	42	54	1	2	0	1	23	11.5%	3	7.7%	0.0%	3.8%	88.5%	7.7%	11.5%
1:00 to 2:00 am	2	15	47	43	43	45	56	2	0	0	0	15	0.0%	0	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
2:00 to 3:00 am	3	19	47	44	44	47	50	3	1	0	1	17	10.5%	2	5.3%	0.0%	5.3%	89.5%	5.3%	10.5%
3:00 to 4:00 am	4	46	49	45	44	43	55	4	2	3	2	39	15.2%	7	4.3%	6.5%	4.3%	84.8%	10.9%	15.2%
4:00 to 5:00 am	5	244	50	46	46	50	59	5	55	32	32	125	48.8%	119	22.5%	13.1%	13.1%	51.2%	35.7%	48.8%
5:00 to 6:00 am	6	916	49	44	44	44	61	6 AM	411	171	145	189	79.4%	727	44.9%	18.7%	15.8%	20.6%	63.5%	79.4%
6:00 to 7:00 am	7	886	47	40	42	43	63	7	344	198	155	189	78.7%	697	38.8%	22.3%	17.5%	21.3%	61.2%	78.7%
7:00 to 8:00 am	8	1048	46	41	42	45	56	8	492	227	163	166	84.2%	882	46.9%	21.7%	15.6%	15.8%	68.6%	84.2%
8:00 to 9:00 am	9	950	47	42	42	40	68	9	392	207	157	194	79.6%	756	41.3%	21.8%	16.5%	20.4%	63.1%	79.6%
9:00 to 10:00 am	10	593	48	44	44	43	59	10	134	122	120	217	63.4%	376	22.6%	20.6%	20.2%	36.6%	43.2%	63.4%
10:00 to 11:00 am	11	538	48	44	44	45	59	11	124	81	114	219	59.3%	319	23.0%	15.1%	21.2%	40.7%	38.1%	59.3%
11:00 to 12:00 noon	12	565	47	42	43	45	59	Noon	187	96	86	196	65.3%	369	33.1%	17.0%	15.2%	34.7%	50.1%	65.3%
12:00 to 1:00 pm	13	501	50	45	45	45	59	1	123	83	83	212	57.7%	289	24.6%	16.6%	16.6%	42.3%	41.1%	57.7%
1:00 to 2:00 pm	14	519	49	44	45	45	59	2	130	99	90	200	61.5%	319	25.0%	19.1%	17.3%	38.5%	44.1%	61.5%
2:00 to 3:00 pm	15	520	49	44	44	47	57	3	149	85	82	204	60.8%	316	28.7%	16.3%	15.8%	39.2%	45.0%	60.8%
3:00 to 4:00 pm	16	552	50	45	45	44	62	4	172	83	89	208	62.3%	344	31.2%	15.0%	16.1%	37.7%	46.2%	62.3%
4:00 to 5:00 pm	17	534	50	45	45	45	63	5	184	76	83	191	64.2%	343	34.5%	14.2%	15.5%	35.8%	48.7%	64.2%
5:00 to 6:00 pm	18	473	50	45	46	47	60	6 PM	143	82	58	190	59.8%	283	30.2%	17.3%	12.3%	40.2%	47.6%	59.8%
6:00 to 7:00 pm	19	366	51	47	47	47	64	7	91	47	56	172	53.0%	194	24.9%	12.8%	15.3%	47.0%	37.7%	53.0%
7:00 to 8:00 pm	20	245	52	47	47	47	62	8	41	29	38	137	44.1%	108	16.7%	11.8%	15.5%	55.9%	28.6%	44.1%
8:00 to 9:00 pm	21	208	51	46	45	44	65	9	29	20	24	135	35.1%	73	13.9%	9.6%	11.5%	64.9%	23.6%	35.1%
9:00 to 10:00 pm	22	121	49	45	46	46	67	10	14	5	17	85	29.8%	36	11.6%	4.1%	14.0%	70.2%	15.7%	29.8%
10:00 to 11:00 pm	23	92	51	47	46	43	59	11	12	6	9	65	29.3%	27	13.0%	6.5%	9.8%	70.7%	19.6%	29.3%
11:00 to 12:00 pm	24	32	50	45	45	45	53	Midnight	1	0	1	30	6.3%	2	3.1%	0.0%	3.1%	93.8%	3.1%	6.3%
24 Hour Average		10009		44.4										24 Hr Ave	22.8%	12.5%	13.0%	51.7%		

Appendix I Speed and Headway Summary S/O Depot RD

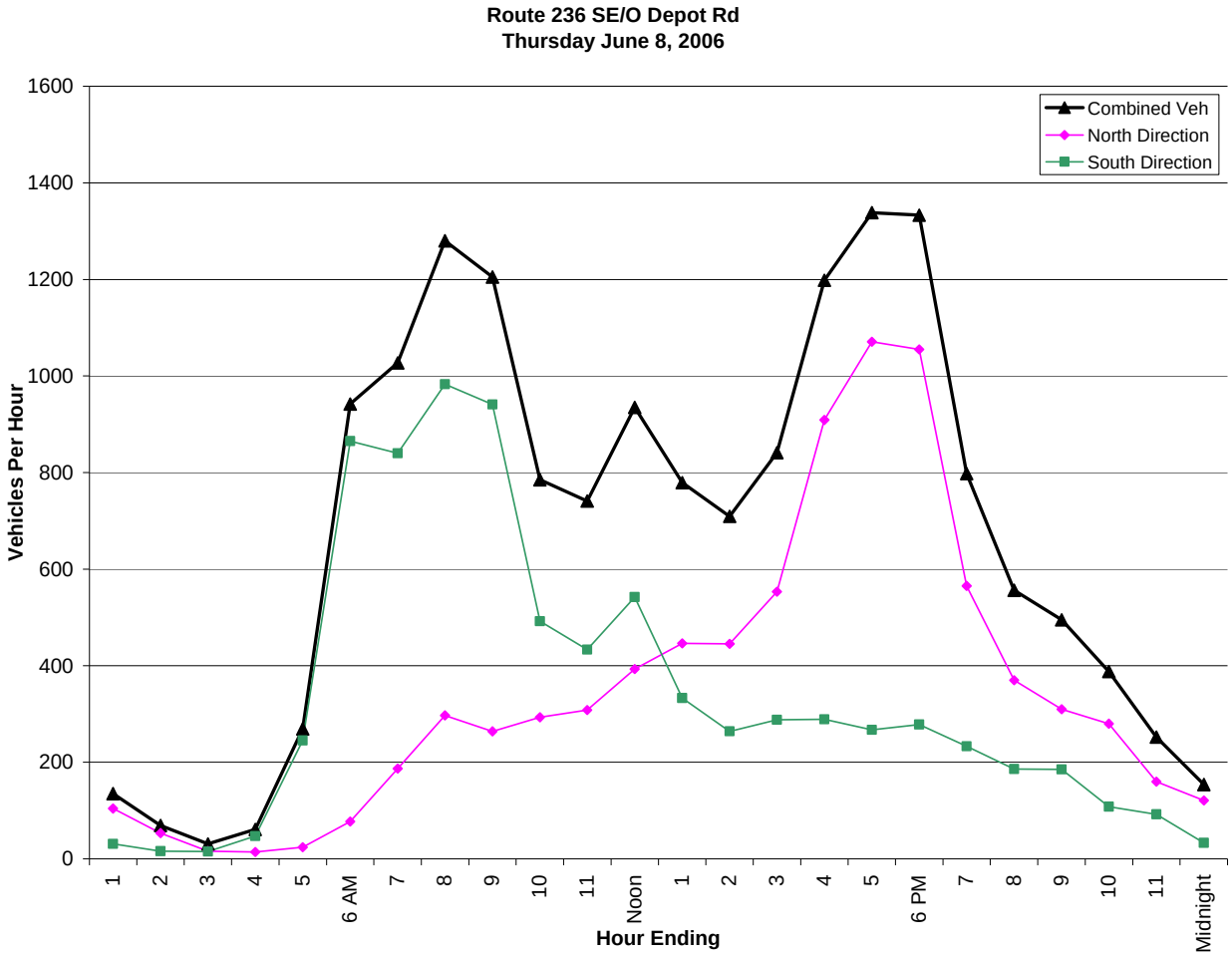
Route 236 Northbound S/O Depot Rd

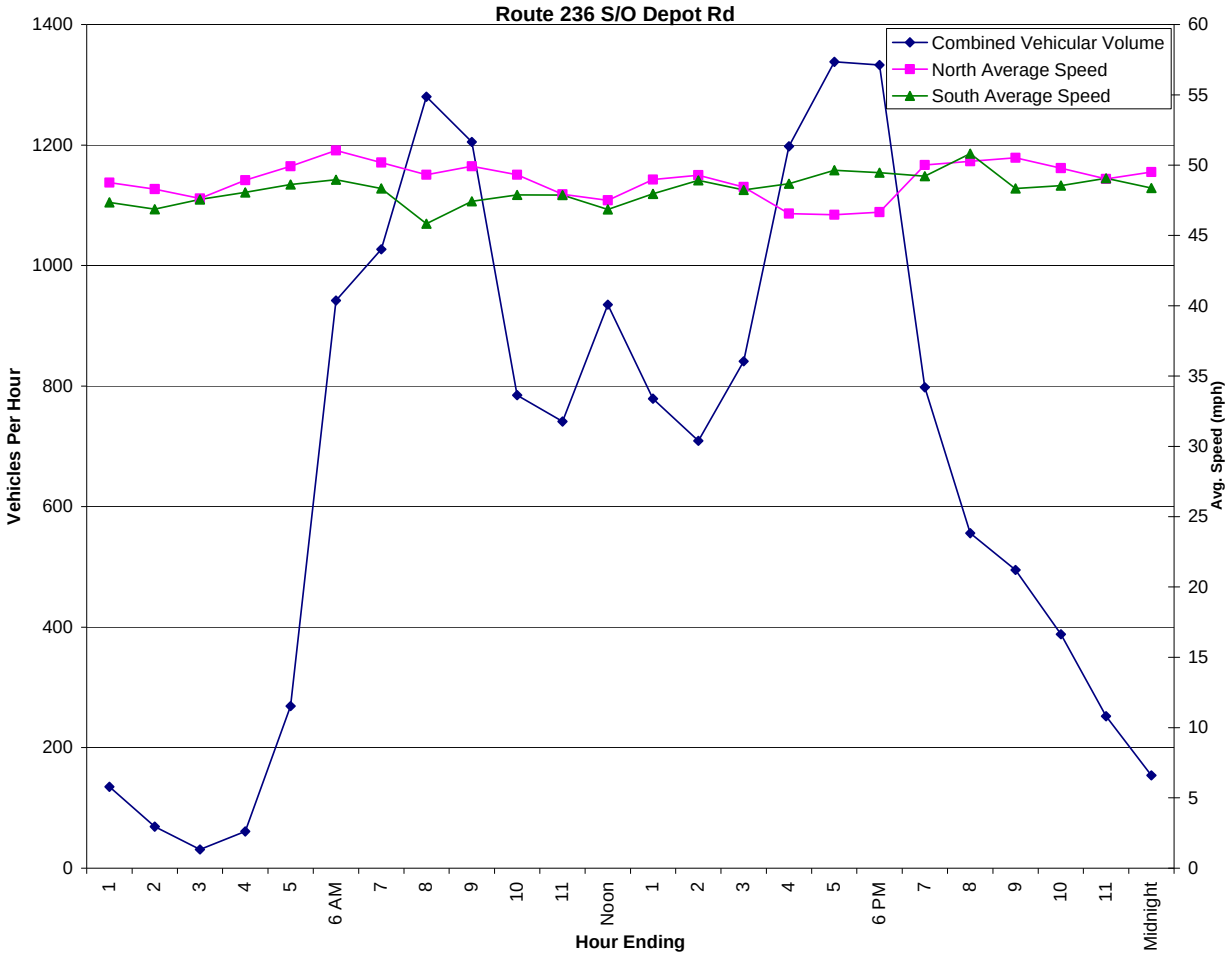
Hour	Hour Ending	Number of Vehicles	85th Percentile Speed (mph)	Average Speed (mph)	Median Speed (mph)	Mode Speed (mph)	Max Speed (mph)	Hour Ending	0 to 2.00	2.01 to 3	3.01 to 5	>5	% Time Delay (<5 sec old HCM)	Volume 0 to 5 sec	% 0 to 2.00	% 2.01 to 3	% 3.01 to 5	% > 5	% 0 to 3	% 0 to 5
12:00 to 1:00 am	1	104	51	49	49	51	59	1	6	4	12	82	21.2%	22	5.8%	3.8%	11.5%	78.8%	9.6%	21.2%
1:00 to 2:00 am	2	53	51	48	48	48	57	2	2	4	3	44	17.0%	9	3.8%	7.5%	5.7%	83.0%	11.3%	17.0%
2:00 to 3:00 am	3	16	50	48	48	47	56	3	0	0	0	16	0.0%	0	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
3:00 to 4:00 am	4	14	53	49	48	48	56	4	0	0	0	14	0.0%	0	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
4:00 to 5:00 am	5	24	53	50	49	49	59	5	3	0	0	21	12.5%	3	12.5%	0.0%	0.0%	87.5%	12.5%	12.5%
5:00 to 6:00 am	6	77	55	51	51	50	61	6 AM	5	4	1	67	13.0%	10	6.5%	5.2%	1.3%	87.0%	11.7%	13.0%
6:00 to 7:00 am	7	187	55	50	50	50	61	7	32	11	24	120	35.8%	67	17.1%	5.9%	12.8%	64.2%	23.0%	35.8%
7:00 to 8:00 am	8	297	55	49	50	50	61	8	63	30	39	165	44.4%	132	21.2%	10.1%	13.1%	55.6%	31.3%	44.4%
8:00 to 9:00 am	9	264	54	50	50	50	64	9	46	26	36	156	40.9%	108	17.4%	9.8%	13.6%	59.1%	27.3%	40.9%
9:00 to 10:00 am	10	293	53	49	49	47	67	10	43	35	46	169	42.3%	124	14.7%	11.9%	15.7%	57.7%	26.6%	42.3%
10:00 to 11:00 am	11	308	52	48	48	47	59	11	56	55	40	157	49.0%	151	18.2%	17.9%	13.0%	51.0%	36.0%	49.0%
11:00 to 12:00 noon	12	393	53	47	48	50	62	Noon	85	52	60	196	50.1%	197	21.6%	13.2%	15.3%	49.9%	34.9%	50.1%
12:00 to 1:00 pm	13	446	53	49	49	50	65	1	110	76	73	187	58.1%	259	24.7%	17.0%	16.4%	41.9%	41.7%	58.1%
1:00 to 2:00 pm	14	445	53	49	49	50	67	2	128	65	67	185	58.4%	260	28.8%	14.6%	15.1%	41.6%	43.4%	58.4%
2:00 to 3:00 pm	15	553	53	48	49	50	61	3	171	92	98	191	65.3%	361	30.9%	16.6%	17.7%	34.5%	47.6%	65.3%
3:00 to 4:00 pm	16	909	52	47	47	47	64	4	376	213	157	163	82.1%	746	41.4%	23.4%	17.3%	17.9%	64.8%	82.1%
4:00 to 5:00 pm	17	1071	51	46	47	47	61	5	484	256	186	145	86.5%	926	45.2%	23.9%	17.4%	13.5%	69.1%	86.5%
5:00 to 6:00 pm	18	1055	51	47	46	45	64	6 PM	469	281	160	145	86.3%	910	44.5%	26.6%	15.2%	13.7%	71.1%	86.3%
6:00 to 7:00 pm	19	565	55	50	50	50	66	7	186	116	102	161	71.5%	404	32.9%	20.5%	18.1%	28.5%	53.5%	71.5%
7:00 to 8:00 pm	20	370	55	50	50	50	61	8	107	52	44	167	54.9%	203	28.9%	14.1%	11.9%	45.1%	43.0%	54.9%
8:00 to 9:00 pm	21	310	54	51	50	50	65	9	57	48	55	150	51.6%	160	18.4%	15.5%	17.7%	48.4%	33.9%	51.6%
9:00 to 10:00 pm	22	280	54	50	50	50	63	10	60	30	32	158	43.6%	122	21.4%	10.7%	11.4%	56.4%	32.1%	43.6%
10:00 to 11:00 pm	23	160	53	49	49	50	56	11	25	23	15	97	39.4%	63	15.6%	14.4%	9.4%	60.6%	30.0%	39.4%
11:00 to 12:00 pm	24	121	54	50	49	50	61	Midnight	8	5	9	99	18.2%	22	6.6%	4.1%	7.4%	81.8%	10.7%	18.2%
24 Hour Average		8315		48.9										24 Hr Ave	19.9%	12.0%	11.5%	56.6%		
									Headway <=2.0	Headway >=2.001	Headway <=3	Headway >=3.001	Headway <=5	Headway >5						

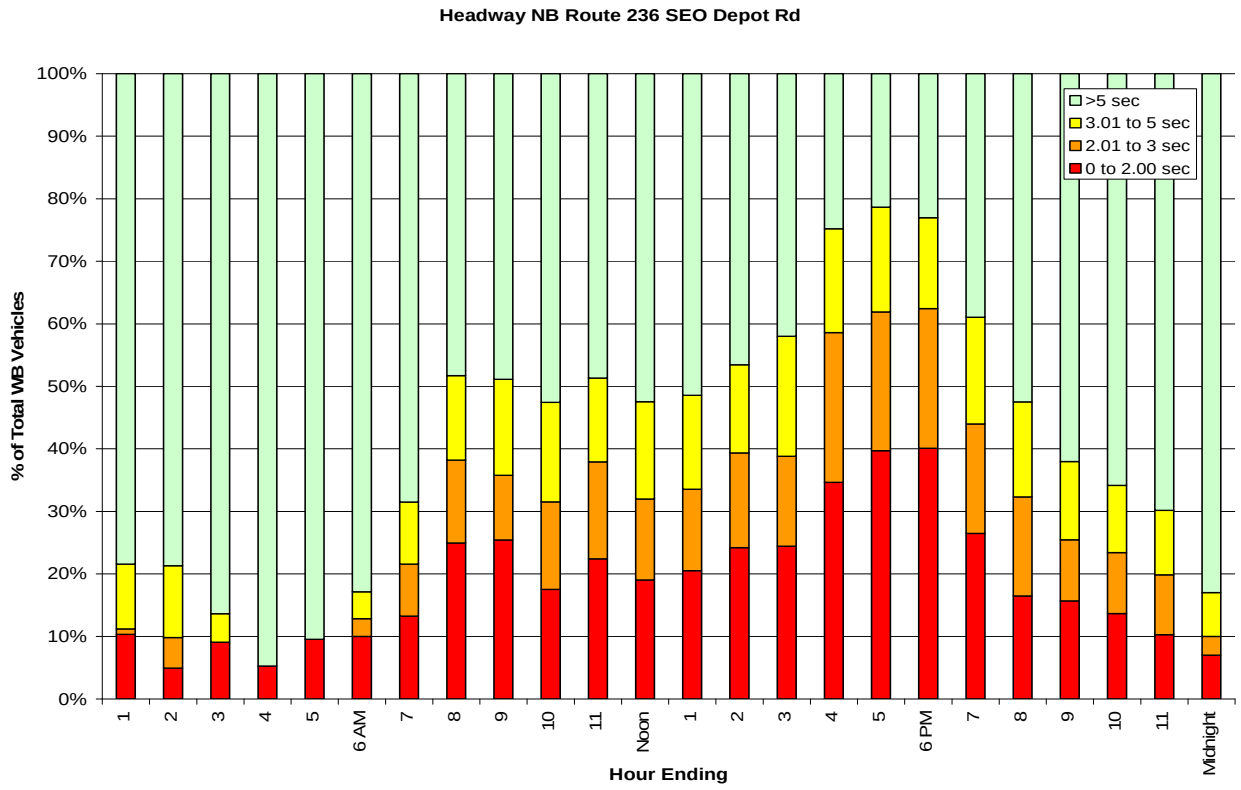
Appendix I Speed and Headway Summary S/E of Depot Rd

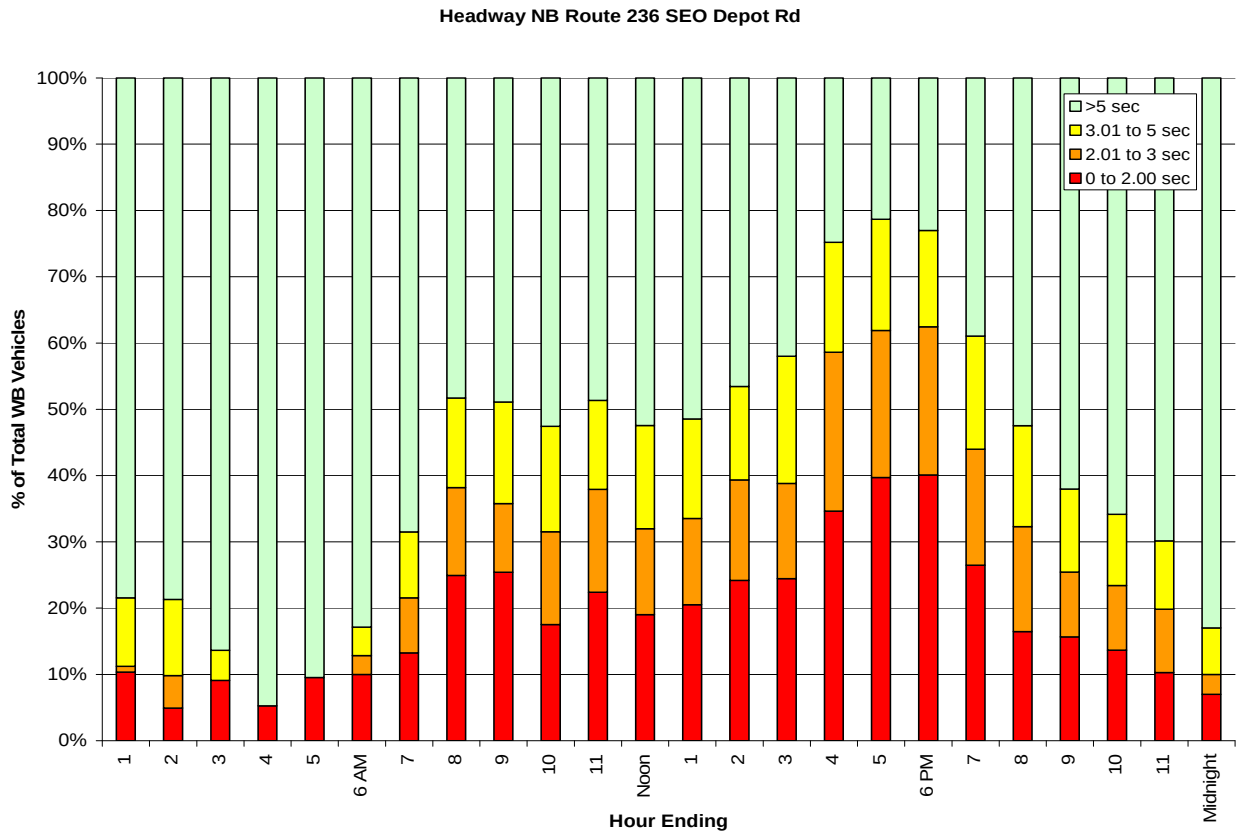
Route 236 Southbound S/O Depot Rd

Hour	Hour Ending	Number of Vehicles	85th Percentile Speed (mph)	Average Speed (mph)	Median Speed (mph)	Mode Speed (mph)	Max Speed (mph)	Hour Ending	0 to 2.00	2.01 to 3	3.01 to 5	>5	% Time Delay (<5 sec old HCM)	Volume 0 to 5 sec	% 0 to 2.00	% 2.01 to 3	% 3.01 to 5	% > 5	% 0 to 3	% 0 to 5
12:00 to 1:00 am	1	31	51	47	48	51	56	1	2	1	1	27	12.9%	4	6.5%	3.2%	3.2%	87.1%	9.7%	12.9%
1:00 to 2:00 am	2	15	51	47	47	47	56	2	0	0	0	15	0.0%	0	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
2:00 to 3:00 am	3	18	51	48	47	47	59	3	2	0	0	16	11.1%	2	11.1%	0.0%	0.0%	88.9%	11.1%	11.1%
3:00 to 4:00 am	4	48	50	48	48	50	61	4	3	2	2	41	14.6%	7	6.3%	4.2%	4.2%	85.4%	10.4%	14.6%
4:00 to 5:00 am	5	249	51	49	48	48	59	5	49	37	29	134	46.2%	115	19.7%	14.9%	11.6%	53.8%	34.5%	46.2%
5:00 to 6:00 am	6	862	52	49	49	50	57	6 AM	367	192	149	154	82.1%	708	42.6%	22.3%	17.3%	17.9%	64.8%	82.1%
6:00 to 7:00 am	7	843	52	48	48	47	61	7	320	208	160	155	81.6%	688	38.0%	24.7%	19.0%	18.4%	62.6%	81.6%
7:00 to 8:00 am	8	957	50	46	46	47	59	8	409	204	179	165	82.8%	792	42.7%	21.3%	18.7%	17.2%	64.1%	82.8%
8:00 to 9:00 am	9	837	51	47	48	47	58	9	369	166	134	167	79.9%	669	44.1%	19.8%	16.0%	20.0%	63.9%	79.9%
9:00 to 10:00 am	10	514	52	48	49	50	67	10	156	93	83	182	64.6%	332	30.4%	18.1%	16.1%	35.4%	48.4%	64.6%
10:00 to 11:00 am	11	458	52	48	48	50	64	11	128	71	63	196	57.2%	262	27.9%	15.5%	13.8%	42.8%	43.4%	57.2%
11:00 to 12:00 noon	12	469	51	47	47	47	60	Noon	149	75	73	172	63.3%	297	31.8%	16.0%	15.6%	36.7%	47.8%	63.3%
12:00 to 1:00 pm	13	408	52	48	48	47	74	1	120	63	50	174	57.1%	233	29.4%	15.4%	12.3%	42.6%	44.9%	57.1%
1:00 to 2:00 pm	14	434	53	49	49	47	60	2	124	59	58	193	55.5%	241	28.6%	13.6%	13.4%	44.5%	42.2%	55.5%
2:00 to 3:00 pm	15	462	53	48	49	47	63	3	128	79	87	168	63.6%	294	27.7%	17.1%	18.8%	36.4%	44.8%	63.6%
3:00 to 4:00 pm	16	473	53	49	50	50	75	4	170	84	54	165	65.1%	308	35.9%	17.8%	11.4%	34.9%	53.7%	65.1%
4:00 to 5:00 pm	17	451	54	50	50	50	64	5	142	67	65	177	60.8%	274	31.5%	14.9%	14.4%	39.2%	46.3%	60.8%
5:00 to 6:00 pm	18	425	54	49	50	50	61	6 PM	126	70	50	178	57.9%	246	29.6%	16.5%	11.8%	41.9%	46.1%	57.9%
6:00 to 7:00 pm	19	334	54	49	49	48	61	7	97	44	41	152	54.5%	182	29.0%	13.2%	12.3%	45.5%	42.2%	54.5%
7:00 to 8:00 pm	20	213	55	51	50	50	63	8	47	28	19	119	44.1%	94	22.1%	13.1%	8.9%	55.9%	35.2%	44.1%
8:00 to 9:00 pm	21	183	52	48	48	47	65	9	49	18	18	98	46.4%	85	26.8%	9.8%	9.8%	53.6%	36.6%	46.4%
9:00 to 10:00 pm	22	128	52	49	48	47	62	10	13	17	20	78	39.1%	50	10.2%	13.3%	15.6%	60.9%	23.4%	39.1%
10:00 to 11:00 pm	23	78	53	49	49	49	63	11	11	5	4	58	25.6%	20	14.1%	6.4%	5.1%	74.4%	20.5%	25.6%
11:00 to 12:00 pm	24	47	51	48	49	49	56	Midnight	3	3	4	37	21.3%	10	6.4%	6.4%	8.5%	78.7%	12.8%	21.3%
24 Hour Average		8937		48.3										24 Hr Ave	24.7%	13.2%	11.6%	50.5%		


Route 236 SE/O Depot Rd
Thursday June 8, 2006
Combined Veh
North Direction
South Direction
Vehicles Per Hour
1600
1400
1200
1000
800
600
400
200
0
1
2
3
4
5
6 AM
7
8
9
10
11
Noon
1
2
3
4
5
6 PM
7
8
9
10
11
Midnight
Hour Ending


Route 236 S/O Depot Rd
Combined Vehicular Volume
North Average Speed
South Average Speed
Vehicles Per Hour
Avg. Speed (mph)
Hour Ending
1400
1200
1000
800
600
400
200
0
60
55
50
45
40
35
30
25
20
15
10
5
0
1
2
3
4
5
6 AM
7
8
9
10
11
Noon
1
2
3
4
5
6 PM
7
8
9
10
11
Midnight


Headway NB Route 236 SEO Depot Rd
% of Total WB Vehicles
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
>5 sec
3.01 to 5 sec
2.01 to 3 sec
0 to 2.00 sec
1
2
3
4
5
6 AM
7
8
9
10
11
Noon
1
2
3
4
5
6 PM
7
8
9
10
11
Midnight
Hour Ending

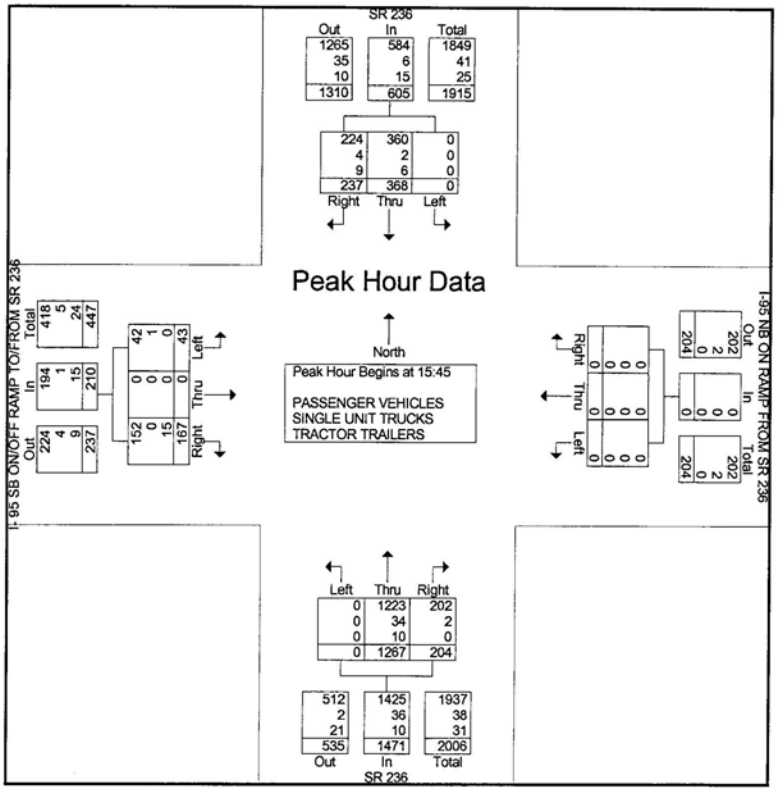

Headway NB Route 236 SEO Depot Rd
% of Total WB Vehicles
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
>5 sec
3.01 to 5 sec
2.01 to 3 sec
0 to 2.00 sec
1
2
3
4
5
6 AM
7
8
9
10
11
Noon
1
2
3
4
5
6 PM
7
8
9
10
11
Midnight
Hour Ending

MAINE DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING DIVISION
TRAFFIC MONITORING SECTION

KITTERY RAIN / OVERCAST
SR 236 ,I-95 ON/OFF RAMP FROM SR 236
LAPLANTE/ HUNNEWELL/BRANN
2908/2909/2913

File Name : KITTERY-078-TM
Site Code : 31130078
Start Date : 6/9/2006
Page No : 4

	SR 236 From North				I-95 NB ON RAMP FROM SR 236 From East				SR 236 From South				I- 95 SB ON/OFF RAMP TO/FROM SR 236 From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 15:45																	
15:45	**66**	91	0	157	0	0	0	0	58	**324**	0	382	**49**	0	14	**63**	**602**
16:00	50	77	0	127	0	0	0	0	**63**	321	0	**384**	35	0	8	43	554
16:15	63	96	0	159	0	0	0	0	37	320	0	357	47	0	**15**	62	578
16:30	58	**104**	0	**162**	0	0	0	0	46	302	0	348	36	0	6	42	552
Total Volume	237	368	0	605	0	0	0	0	204	1267	0	1471	167	0	43	210	2286
% App. Total	39.2	60.8	0		0	0	0		13.9	86.1	0		79.5	0	20.5		
PHF	.898	.885	.000	.934	.000	.000	.000	.000	.810	.978	.000	.958	.852	.000	.717	.833	.949
PASSENGER VEHICLES	224	360	0	584	0	0	0	0	202	1223	0	1425	152	0	42	194	2203
% PASSENGER VEHICLES	94.5	97.8	0	96.5	0	0	0	0	99.0	96.5	0	96.9	91.0	0	97.7	92.4	96.4
SINGLE UNIT TRUCKS	4	2	0	6	0	0	0	0	2	34	0	36	0	0	1	1	43
% SINGLE UNIT TRUCKS	1.7	0.5	0	1.0	0	0	0	0	1.0	2.7	0	2.4	0	0	2.3	0.5	1.9
TRACTOR TRAILERS	9	6	0	15	0	0	0	0	0	10	0	10	15	0	0	15	40
% TRACTOR TRAILERS	3.8	1.6	0	2.5	0	0	0	0	0	0.8	0	0.7	9.0	0	0	7.1	1.7

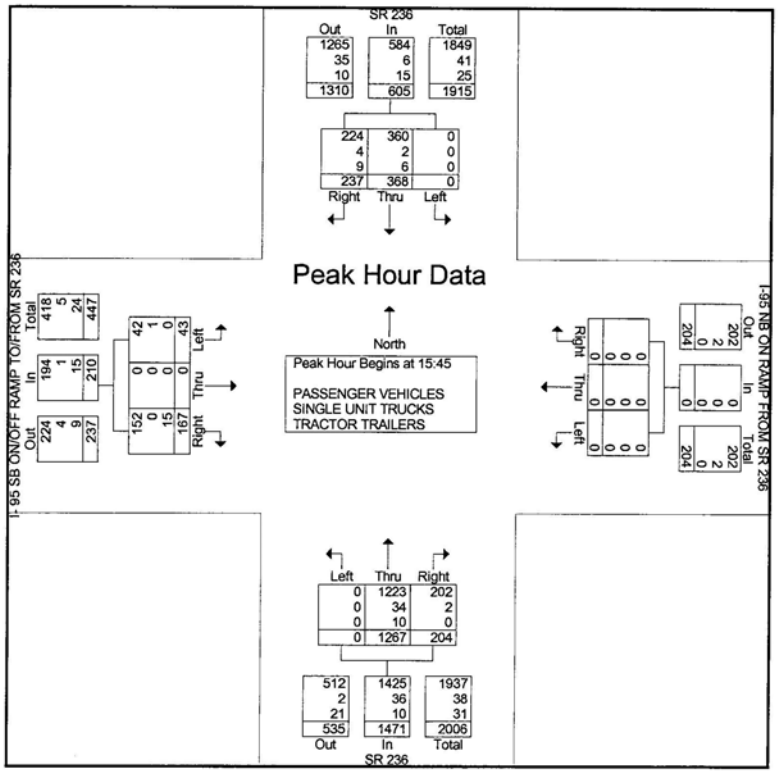


MAINE DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING DIVISION
TRAFFIC MONITORING SECTION

KITTERY RAIN / OVERCAST
SR 236 ,I-95 ON/OFF RAMP FROM SR 236
LAPLANTE/ HUNNEWELL/BRANN
2908/2909/2913

File Name : KITTERY-078-TM
Site Code : 31130078
Start Date : 6/9/2006
Page No : 4

	SR 236 From North				I-95 NB ON RAMP FROM SR 236 From East				SR 236 From South				I- 95 SB ON/OFF RAMP TO/FROM SR 236 From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 15:45																	
15:45	**66**	91	0	157	0	0	0	0	58	**324**	0	382	**49**	0	14	**63**	**602**
16:00	50	77	0	127	0	0	0	0	**63**	321	0	**384**	35	0	8	43	554
16:15	63	96	0	159	0	0	0	0	37	320	0	357	47	0	**15**	62	578
16:30	58	**104**	0	**162**	0	0	0	0	46	302	0	348	36	0	6	42	552
Total Volume	237	368	0	605	0	0	0	0	204	1267	0	1471	167	0	43	210	2286
% App. Total	39.2	60.8	0		0	0	0		13.9	86.1	0		79.5	0	20.5		
PHF	.898	.885	.000	.934	.000	.000	.000	.000	.810	.978	.000	.958	.852	.000	.717	.833	.949
PASSENGER VEHICLES	224	360	0	584	0	0	0	0	202	1223	0	1425	152	0	42	194	2203
% PASSENGER VEHICLES	94.5	97.8	0	96.5	0	0	0	0	99.0	96.5	0	96.9	91.0	0	97.7	92.4	96.4
SINGLE UNIT TRUCKS	4	2	0	6	0	0	0	0	2	34	0	36	0	0	1	1	43
% SINGLE UNIT TRUCKS	1.7	0.5	0	1.0	0	0	0	0	1.0	2.7	0	2.4	0	0	2.3	0.5	1.9
TRACTOR TRAILERS	9	6	0	15	0	0	0	0	0	10	0	10	15	0	0	15	40
% TRACTOR TRAILERS	3.8	1.6	0	2.5	0	0	0	0	0	0.8	0	0.7	9.0	0	0	7.1	1.7

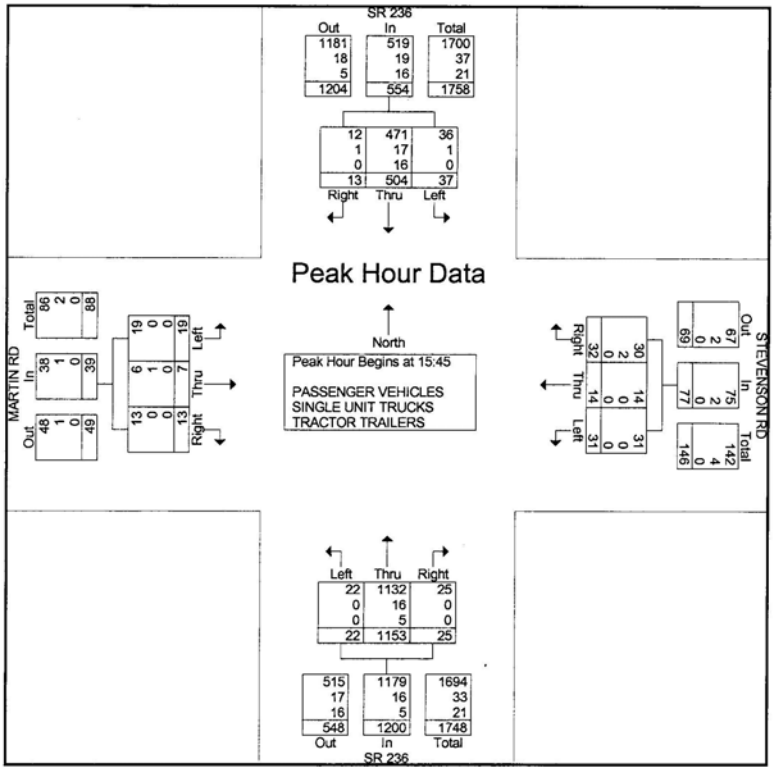


MAINE DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING DIVISION
TRAFFIC MONITORING SECTION

KITTERY RAIN/OVERCAST
SR 236 @ STEVENSON RD & MARTIN RD
AMANDA LESSARD/ AMANDA MORGAN
2200/ 2201

File Name : KITTERY-004-TM
Site Code : 31130004
Start Date : 6/9/2006
Page No : 4

	SR 236 From North				STEVENSON RD From East				SR 236 From South				MARTIN RD From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 15:45																	
15:45	1	128	8	137	6	4	9	19	4	**320**	6	**330**	1	1	5	7	**493**
16:00	1	122	10	133	6	3	6	15	5	285	6	296	**6**	1	2	9	453
16:15	5	111	7	123	6	**5**	**10**	21	**8**	290	**7**	305	3	2	**7**	**12**	461
16:30	**6**	**143**	**12**	**161**	**14**	2	6	**22**	8	258	3	269	3	**3**	5	11	463
Total Volume	13	504	37	554	32	14	31	77	25	1153	22	1200	13	7	19	39	1870
% App. Total	2.3	91	6.7		41.6	18.2	40.3		2.1	96.1	1.8		33.3	17.9	48.7		
PHF	.542	.881	.771	.860	.571	.700	.775	.875	.781	.901	.786	.909	.542	.583	.679	.813	.948
PASSENGER VEHICLES	12	471	36	519	30	14	31	75	25	1132	22	1179	13	6	19	38	1811
% PASSENGER VEHICLES	92.3	93.5	97.3	93.7	93.8	100	100	97.4	100	98.2	100	98.3	100	85.7	100	97.4	96.8
SINGLE UNIT TRUCKS	1	17	1	19	2	0	0	2	0	16	0	16	0	1	0	1	38
% SINGLE UNIT TRUCKS	7.7	3.4	2.7	3.4	6.3	0	0	2.6	0	1.4	0	1.3	0	14.3	0	2.6	2.0
TRACTOR TRAILERS	0	16	0	16	0	0	0	0	0	5	0	5	0	0	0	0	21
% TRACTOR TRAILERS	0	3.2	0	2.9	0	0	0	0	0	0.4	0	0.4	0	0	0	0	1.1

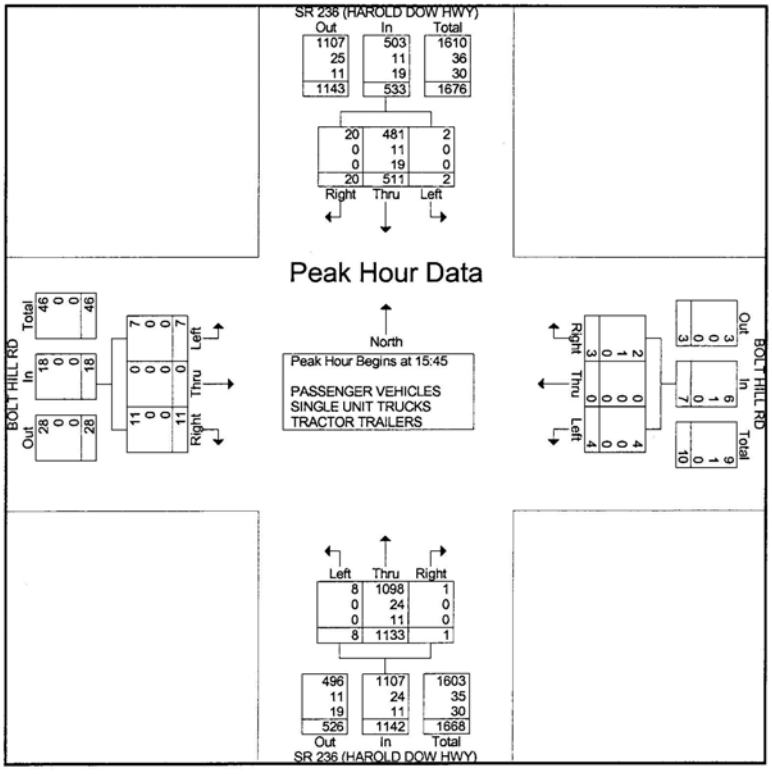


MAINE DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING DIVISION
TRAFFIC MONITORING SECTION

ELIOT RAIN/OVERCAST
SR 236 (HAROLD DOW HWY) @ BOLT HILL RD
BOB KNOX/ LARRY RONCO
2382 / 2383

File Name : ELIOT-032-TM
Site Code : 31090032
Start Date : 6/9/2006
Page No : 4

	SR 236 (HAROLD DOW HWY) From North				BOLT HILL RD From East				SR 236 (HAROLD DOW HWY) From South				BOLT HILL RD From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 15:45																	
15:45	**8**	117	0	125	**1**	0	1	2	0	**303**	1	**304**	0	0	1	1	432
16:00	6	122	0	128	1	0	**3**	**4**	0	270	**4**	274	3	0	**3**	**6**	412
16:15	6	124	0	130	0	0	0	0	0	284	2	286	3	0	2	5	421
16:30	0	**148**	**2**	**150**	1	0	0	1	**1**	276	1	278	**5**	0	1	6	**435**
Total Volume	20	511	2	533	3	0	4	7	1	1133	8	1142	11	0	7	18	1700
% App. Total	3.8	95.9	0.4		42.9	0	57.1		0.1	99.2	0.7		61.1	0	38.9		
PHF	.625	.863	.250	.888	.750	.000	.333	.438	.250	.935	.500	.939	.550	.000	.583	.750	.977
PASSENGER VEHICLES	20	481	2	503	2	0	4	6	1	1098	8	1107	11	0	7	18	1634
% PASSENGER VEHICLES	100	94.1	100	94.4	66.7	0	100	85.7	100	96.9	100	96.9	100	0	100	100	96.1
SINGLE UNIT TRUCKS	0	11	0	11	1	0	0	1	0	24	0	24	0	0	0	0	36
% SINGLE UNIT TRUCKS	0	2.2	0	2.1	33.3	0	0	14.3	0	2.1	0	2.1	0	0	0	0	2.1
TRACTOR TRAILERS	0	19	0	19	0	0	0	0	0	11	0	11	0	0	0	0	30
% TRACTOR TRAILERS	0	3.7	0	3.6	0	0	0	0	0	1.0	0	1.0	0	0	0	0	1.8

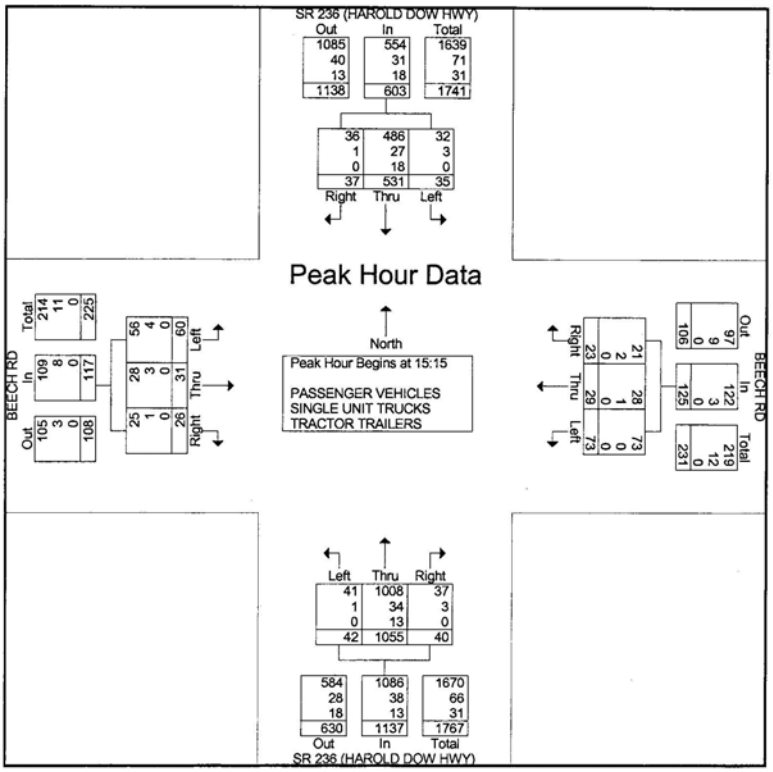


MAINE DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING DIVISION
TRAFFIC MONITORING SECTION

ELIOT SUNNY/RAIN
SR 236 (HAROLD DOW HWY) @ BEECH RD
AMANDA LESSARD/ CRYSTAL BROCK
2384/ 2385

File Name : ELIOT-030-TM
Site Code : 31090030
Start Date : 6/7/2006
Page No : 4

	SR 236 (HAROLD DOW HWY) From North				BEECH RD From East				SR 236 (HAROLD DOW HWY) From South				BEECH RD From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 15:15																	
15:15	5	**154**	5	**164**	**7**	**8**	**27**	**42**	10	222	**13**	245	**13**	**12**	16	**41**	492
15:30	4	120	6	130	5	6	19	30	**13**	263	6	282	6	8	10	24	466
15:45	**15**	129	**12**	156	5	7	12	24	11	279	10	300	3	5	**21**	29	509
16:00	13	128	12	153	6	8	15	29	6	**291**	13	**310**	4	6	13	23	**515**
Total Volume	37	531	35	603	23	29	73	125	40	1055	42	1137	26	31	60	117	1982
% App. Total	6.1	88.1	5.8		18.4	23.2	58.4		3.5	92.8	3.7		22.2	26.5	51.3		
PHF	.617	.862	.729	.919	.821	.906	.676	.744	.769	.906	.808	.917	.500	.646	.714	.713	.962
PASSENGER VEHICLES	36	486	32	554	21	28	73	122	37	1008	41	1086	25	28	56	109	1871
% PASSENGER VEHICLES	97.3	91.5	91.4	91.9	91.3	96.6	100	97.6	92.5	95.5	97.6	95.5	96.2	90.3	93.3	93.2	94.4
SINGLE UNIT TRUCKS	1	27	3	31	2	1	0	3	3	34	1	38	1	3	4	8	80
% SINGLE UNIT TRUCKS	2.7	5.1	8.6	5.1	8.7	3.4	0	2.4	7.5	3.2	2.4	3.3	3.8	9.7	6.7	6.8	4.0
TRACTOR TRAILERS	0	18	0	18	0	0	0	0	0	13	0	13	0	0	0	0	31
% TRACTOR TRAILERS	0	3.4	0	3.0	0	0	0	0	0	1.2	0	1.1	0	0	0	0	1.6

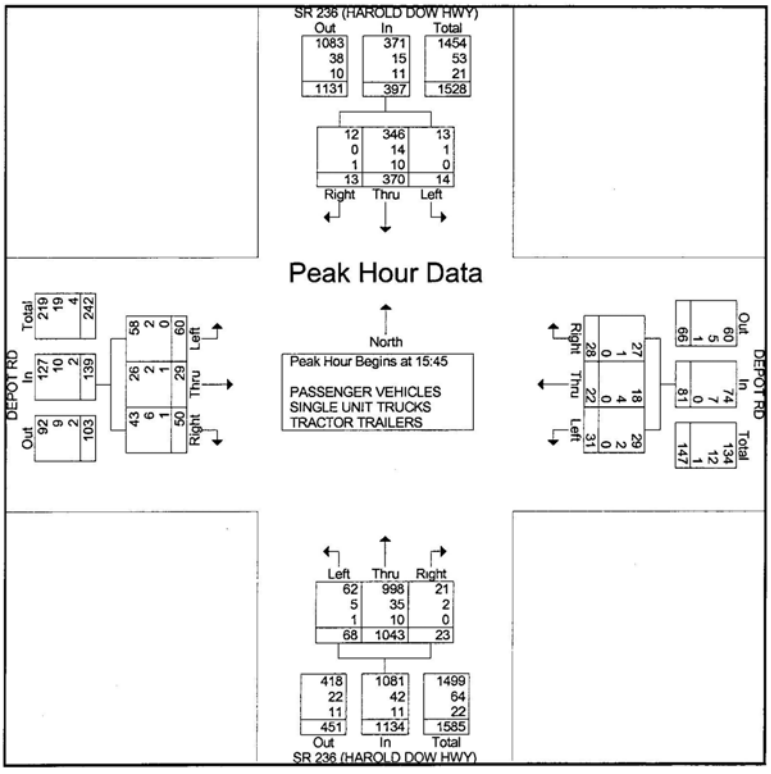


MAINE DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING DIVISION
TRAFFIC MONITORING SECTION

ELIOT SUNNY/RAIN
SR 236 (HAROLD DOW HWY) @ DEPOT RD
LARRY RONCO/ TIM LESIEGE
2380/ 2381

File Name : ELIOT-029-TM
Site Code : 31090029
Start Date : 6/7/2006
Page No : 4

	SR 236 (HAROLD DOW HWY) From North				DEPOT RD From East				SR 236 (HAROLD DOW HWY) From South				DEPOT RD From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 15:45																	
15:45	3	**113**	**4**	**120**	**11**	**10**	**18**	**39**	**8**	257	16	281	**19**	**8**	9	36	**476**
16:00	**5**	96	3	104	7	3	5	15	3	241	**24**	268	13	7	**24**	**44**	431
16:15	4	73	3	80	6	3	5	14	4	**279**	10	**293**	7	6	17	30	417
16:30	1	88	4	93	4	6	3	13	8	266	18	292	11	8	10	29	427
Total Volume	13	370	14	397	28	22	31	81	23	1043	68	1134	50	29	60	139	1751
% App. Total	3.3	93.2	3.5		34.6	27.2	38.3		2	92	6		36	20.9	43.2		
PHF	.650	.819	.875	.827	.636	.550	.431	.519	.719	.935	.708	.968	.658	.906	.625	.790	.920
PASSENGER VEHICLES	12	346	13	371	27	18	29	74	21	998	62	1081	43	26	58	127	1653
% PASSENGER VEHICLES	92.3	93.5	92.9	93.5	96.4	81.8	93.5	91.4	91.3	95.7	91.2	95.3	86.0	89.7	96.7	91.4	94.4
SINGLE UNIT TRUCKS	0	14	1	15	1	4	2	7	2	35	5	42	6	2	2	10	74
% SINGLE UNIT TRUCKS	0	3.8	7.1	3.8	3.6	18.2	6.5	8.6	8.7	3.4	7.4	3.7	12.0	6.9	3.3	7.2	4.2
TRACTOR TRAILERS	1	10	0	11	0	0	0	0	0	10	1	11	1	1	0	2	24
% TRACTOR TRAILERS	7.7	2.7	0	2.8	0	0	0	0	0	1.0	1.5	1.0	2.0	3.4	0	1.4	1.4

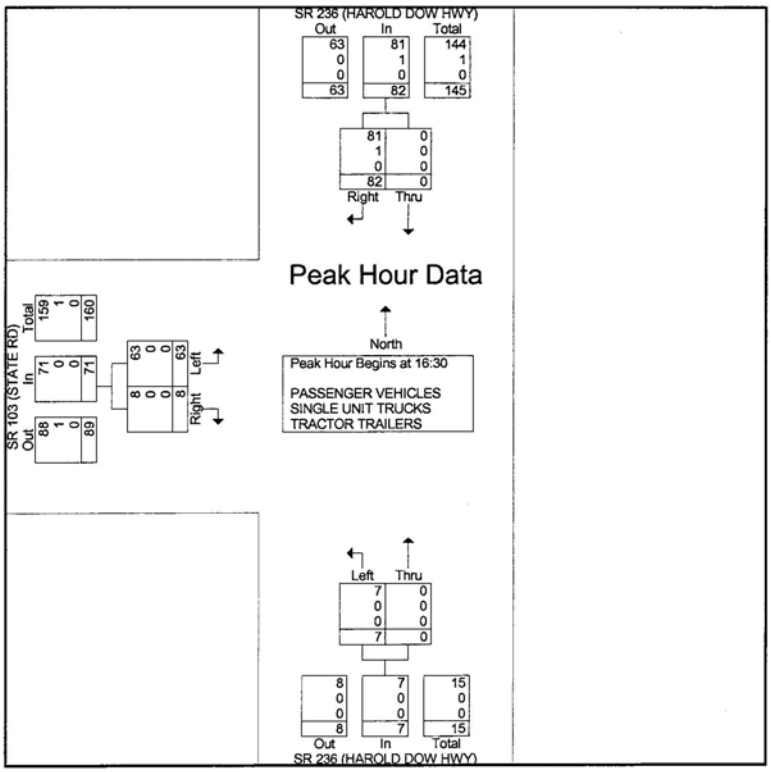


MAINE DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING DIVISION
TRAFFIC MONITORING SECTION

ELIOT SUNNY/RAIN
SR 236 (HAROLD DOW HWY),SR 103(STATE RD)
BOB KNOX
1918

File Name : ELIOT-011-TM
Site Code : 31090011
Start Date : 6/7/2006
Page No : 4

	SR 236 (HAROLD DOW HWY) From North			SR 236 (HAROLD DOW HWY) From South			SR 103 (STATE RD) From West			
Start Time	Right	Thru	App. Total	Thru	Left	App. Total	Right	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 17:45 - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 16:30										
16:30	17	0	17	0	**3**	**3**	2	16	18	38
16:45	20	0	20	0	1	1	**3**	**19**	**22**	43
17:00	16	0	16	0	1	1	1	16	17	34
17:15	**29**	0	**29**	0	2	2	2	12	14	**45**
Total Volume	82	0	82	0	7	7	8	63	71	160
% App. Total	100	0		0	100		11.3	88.7		
PHF	.707	.000	.707	.000	.583	.583	.667	.829	.807	.889
PASSENGER VEHICLES	81	0	81	0	7	7	8	63	71	159
% PASSENGER VEHICLES	98.8	0	98.8	0	100	100	100	100	100	99.4
SINGLE UNIT TRUCKS	1	0	1	0	0	0	0	0	0	1
% SINGLE UNIT TRUCKS	1.2	0	1.2	0	0	0	0	0	0	0.6
TRACTOR TRAILERS	0	0	0	0	0	0	0	0	0	0
% TRACTOR TRAILERS	0	0	0	0	0	0	0	0	0	0

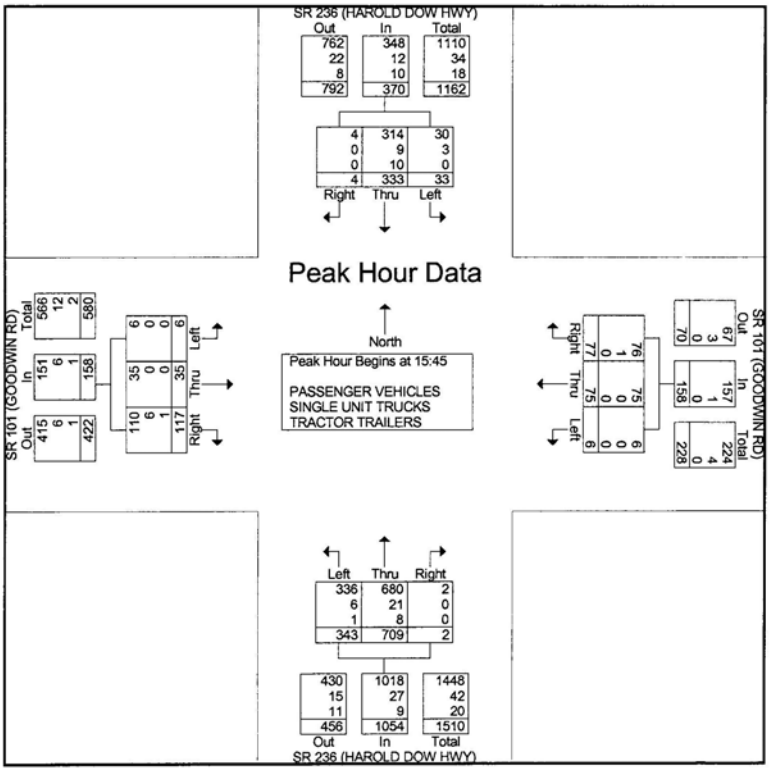


MAINE DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING DIVISION
TRAFFIC MONITORING SECTION

ELIOT SUNNY/RAIN
SR 236 (HAROLD DOW HWY),SR 101(GOODWIN)
SARAH HUNNEWELL/ AMANDA MORGAN
1915/1916

File Name : ELIOT-010-TM
Site Code : 31090010
Start Date : 6/7/2006
Page No : 4

	SR 236 (HAROLD DOW HWY) From North				SR 101 (GOODWIN RD) From East				SR 236 (HAROLD DOW HWY) From South				SR 101 (GOODWIN RD) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 15:45																	
15:45	0	**99**	**9**	**108**	12	13	0	25	0	178	86	264	**38**	6	0	**44**	441
16:00	1	93	9	103	**28**	17	**5**	50	**1**	182	75	258	26	7	**2**	35	446
16:15	0	79	6	85	24	**26**	1	**51**	1	**197**	**97**	**295**	27	10	2	39	**470**
16:30	**3**	62	9	74	13	19	0	32	0	152	85	237	26	**12**	2	40	383
Total Volume	4	333	33	370	77	75	6	158	2	709	343	1054	117	35	6	158	1740
% App. Total	1.1	90	8.9		48.7	47.5	3.8		0.2	67.3	32.5		74.1	22.2	3.8		
PHF	.333	.841	.917	.856	.688	.721	.300	.775	.500	.900	.884	.893	.770	.729	.750	.898	.926
PASSENGER VEHICLES	4	314	30	348	76	75	6	157	2	680	336	1018	110	35	6	151	1674
% PASSENGER VEHICLES	100	94.3	90.9	94.1	98.7	100	100	99.4	100	95.9	98.0	96.6	94.0	100	100	95.6	96.2
SINGLE UNIT TRUCKS	0	9	3	12	1	0	0	1	0	21	6	27	6	0	0	6	46
% SINGLE UNIT TRUCKS	0	2.7	9.1	3.2	1.3	0	0	0.6	0	3.0	1.7	2.6	5.1	0	0	3.8	2.6
TRACTOR TRAILERS	0	10	0	10	0	0	0	0	0	8	1	9	1	0	0	1	20
% TRACTOR TRAILERS	0	3.0	0	2.7	0	0	0	0	0	1.1	0.3	0.9	0.9	0	0	0.6	1.1



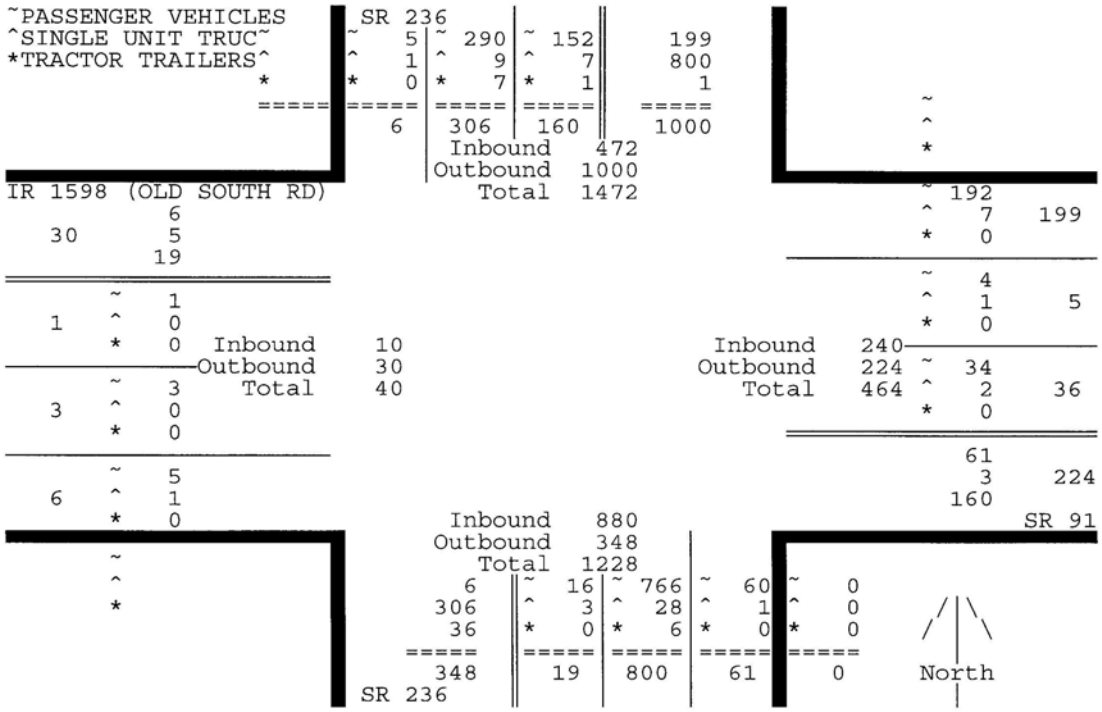
MAINE DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING DIVISION
TRAFFIC MONITORING SECTION

SOUTH BERWICK WX:SHOWERS OVERCAST/SUNNY
SR 91/SR236 & OLD SOUTH RD
JON PARADIS/ LARRY RONCO
2380/2381

Study Name: SBETM544
Site Code : 31250544
Start Date: 06/23/04
Page : 4

PASSENGER VEHICLES,SINGLE UNIT TRUCKS,TRACTOR TRAILERS

Start Time	SR 236 From North Left	Thru	Right	PEDS	SR 91 From East Left	Thru	Right	PEDS	SR 236 From South Left	Thru	Right	PEDS	IR 1598 (OLD SOUTH RD) From West Left	Thru	Right	PEDS	Intvl Total	Exclu Total	Inclu Total
Peak Hour Analysis By Entire Intersection for the Period: 06:00 on 06/23/04 to 17:45 on 06/23/04																			
Time	15:30				15:30				15:30				15:30						
Vol.	160	306	6	x	36	5	199	x	19	800	61	x	1	3	6	x			
Pct.	33.8	64.8	1.2	x	15.0	2.0	82.9	x	2.1	90.9	6.9	x	10.0	30.0	60.0	x			
Total	472				240				880				10						
High	16:00				16:15				15:45				16:15						
Vol.	38	83	1	x	11	2	62	x	5	203	19	x	0	3	1	x			
Total	122				75				227				4						
PHF	0.967				0.800				0.969				0.625						

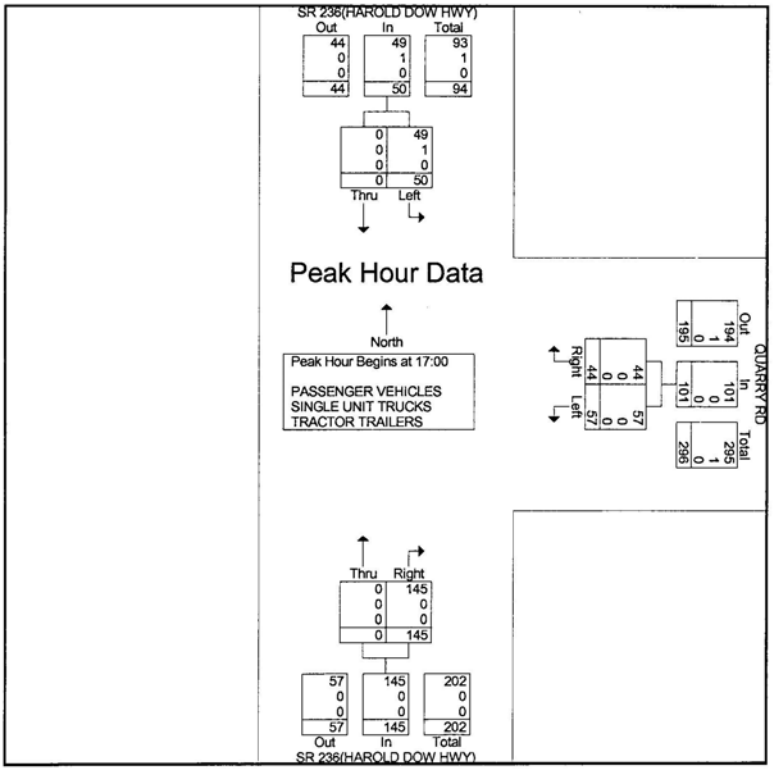


MAINE DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING DIVISION
TRAFFIC MONITORING SECTION

SOUTH BERWICK SUNNY/SHOWERS
SR 236 (HAROLD DOW HIGHWAY), QUARRY RD
SCOTT CASEY
2192

File Name : SOUTH BERWICK-046-TM
Site Code : 31250046
Start Date : 6/2/2006
Page No : 4

	SR 236(HAROLD DOW HWY) From North			QUARRY RD From East			SR 236(HAROLD DOW HWY) From South			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 17:45 - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 17:00										
17:00	0	8	8	**16**	12	28	35	0	35	71
17:15	0	16	16	6	11	17	36	0	36	69
17:30	0	9	9	13	**19**	**32**	35	0	35	76
17:45	0	**17**	**17**	9	15	24	**39**	0	**39**	**80**
Total Volume	0	50	50	44	57	101	145	0	145	296
% App. Total	0	100		43.6	56.4		100	0		
PHF	.000	.735	.735	.688	.750	.789	.929	.000	.929	.925
PASSENGER VEHICLES	0	49	49	44	57	101	145	0	145	295
% PASSENGER VEHICLES	0	98.0	98.0	100	100	100	100	0	100	99.7
SINGLE UNIT TRUCKS	0	1	1	0	0	0	0	0	0	1
% SINGLE UNIT TRUCKS	0	2.0	2.0	0	0	0	0	0	0	0.3
TRACTOR TRAILERS	0	0	0	0	0	0	0	0	0	0
% TRACTOR TRAILERS	0	0	0	0	0	0	0	0	0	0

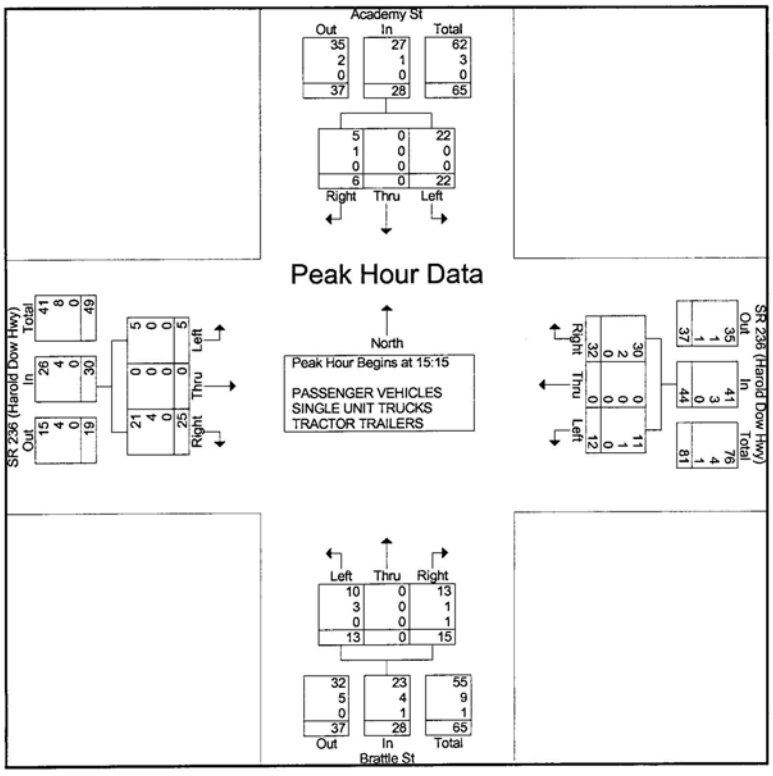


MAINE DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING DIVISION
TRAFFIC MONITORING SECTION

SOUTH BERWICK SUNNY/SHOWERS
ACADEMY ST, SR 236, BRATTLE ST
TIM LESIEGE
2193

File Name : SOUTH BERWICK-027-TM
Site Code : 31250027
Start Date : 6/2/2006
Page No : 4

	Academy St From North				SR 236 (Harold Dow Hwy) From East				Brattle St From South				SR 236 (Harold Dow Hwy) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 15:15																	
15:15	2	0	**6**	8	**9**	0	3	12	4	0	**4**	8	6	0	**3**	9	37
15:30	0	0	4	4	9	0	2	11	1	0	2	3	4	0	0	4	22
15:45	1	0	6	7	5	0	3	8	**5**	0	4	**9**	3	0	1	4	28
16:00	**3**	0	6	**9**	9	0	**4**	**13**	5	0	3	8	**12**	0	1	**13**	**43**
Total Volume	6	0	22	28	32	0	12	44	15	0	13	28	25	0	5	30	130
% App. Total	21.4	0	78.6		72.7	0	27.3		53.6	0	46.4		83.3	0	16.7		
PHF	.500	.000	.917	.778	.889	.000	.750	.846	.750	.000	.813	.778	.521	.000	.417	.577	.756
PASSENGER VEHICLES	5	0	22	27	30	0	11	41	13	0	10	23	21	0	5	26	117
% PASSENGER VEHICLES	83.3	0	100	96.4	93.8	0	91.7	93.2	86.7	0	76.9	82.1	84.0	0	100	86.7	90.0
SINGLE UNIT TRUCKS	1	0	0	1	2	0	1	3	1	0	3	4	4	0	0	4	12
% SINGLE UNIT TRUCKS	16.7	0	0	3.6	6.3	0	8.3	6.8	6.7	0	23.1	14.3	16.0	0	0	13.3	9.2
TRACTOR TRAILERS	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
% TRACTOR TRAILERS	0	0	0	0	0	0	0	0	6.7	0	0	3.6	0	0	0	0	0.8

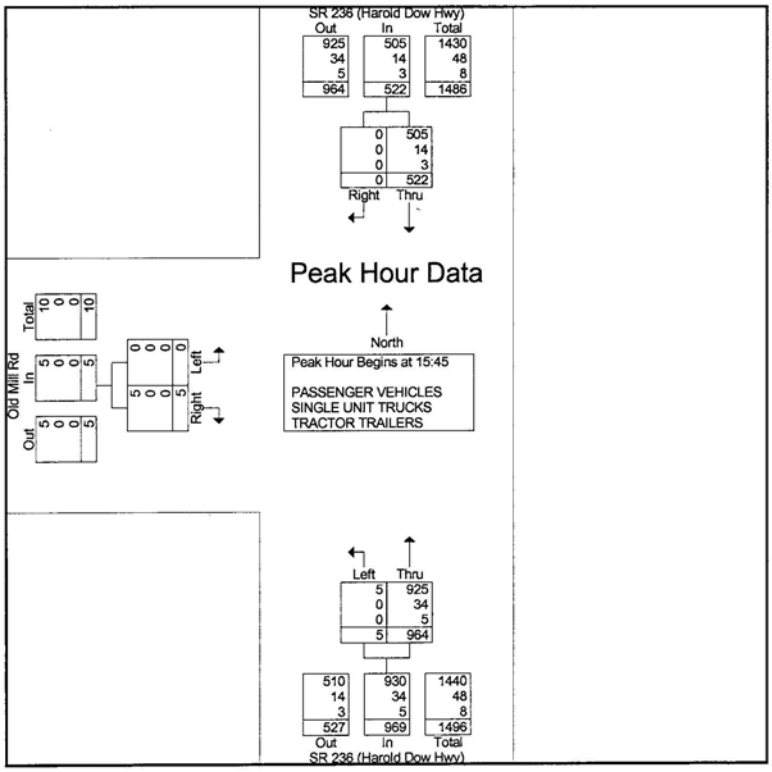


MAINE DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING DIVISION
TRAFFIC MONITORING SECTION

SOUTH BERWICK SUNNY/SHOWERS
SR 236 (HAROLD DOW HIGHWAY), OLD MILL RD
ASHLEY BRANN
2197

File Name : SOUTH BERWICK-029-TM
Site Code : 31250029
Start Date : 6/2/2006
Page No : 4

	SR 236 (Harold Dow Hwy) From North			SR 236 (Harold Dow Hwy) From South			Old Mill Rd From West			
Start Time	Right	Thru	App. Total	Thru	Left	App. Total	Right	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 17:45 - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 15:45										
15:45	0	133	133	231	**2**	233	**3**	0	**3**	369
16:00	0	**136**	**136**	242	0	242	1	0	1	379
16:15	0	132	132	233	2	235	0	0	0	367
16:30	0	121	121	**258**	1	**259**	1	0	1	**381**
Total Volume	0	522	522	964	5	969	5	0	5	1496
% App. Total	0	100		99.5	0.5		100	0		
PHF	.000	.960	.960	.934	.625	.935	.417	.000	.417	.982
PASSENGER VEHICLES	0	505	505	925	5	930	5	0	5	1440
% PASSENGER VEHICLES	0	96.7	96.7	96.0	100	96.0	100	0	100	96.3
SINGLE UNIT TRUCKS	0	14	14	34	0	34	0	0	0	48
% SINGLE UNIT TRUCKS	0	2.7	2.7	3.5	0	3.5	0	0	0	3.2
TRACTOR TRAILERS	0	3	3	5	0	5	0	0	0	8
% TRACTOR TRAILERS	0	0.6	0.6	0.5	0	0.5	0	0	0	0.5

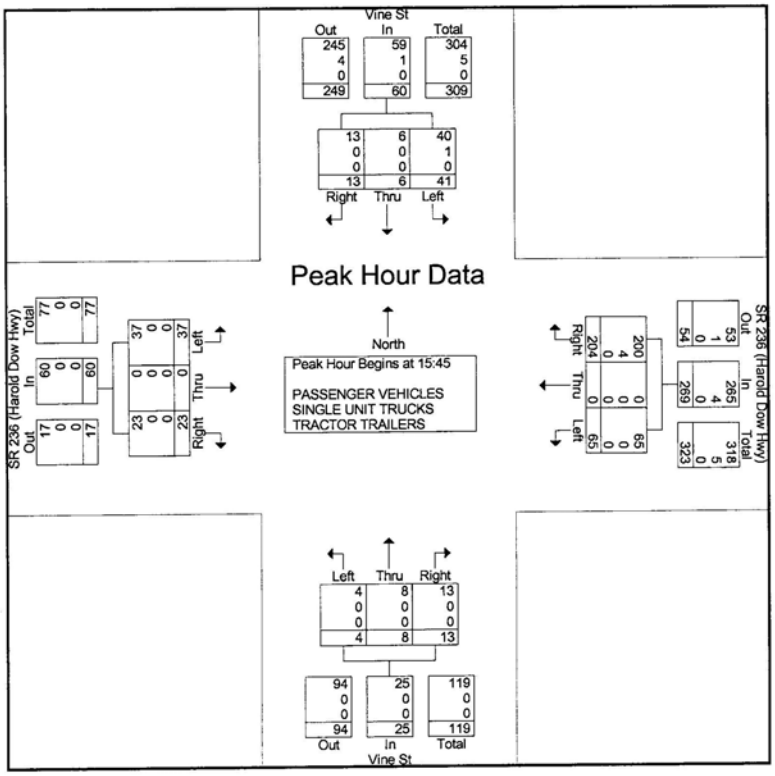


MAINE DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING DIVISION
TRAFFIC MONITORING SECTION

SOUTH BERWICK SUNNY/SHOWERS
VINE ST, SR 236(HAROLD DOW HWY)
SARAH HUNNEWELL
2198

File Name : SOUTH BERWICK-010-TM
Site Code : 31250010
Start Date : 6/2/2006
Page No : 4

	Vine St From North				SR 236 (Harold Dow Hwy) From East				Vine St From South				SR 236 (Harold Dow Hwy) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 15:45																	
15:45	2	**3**	**12**	17	55	0	8	63	3	2	0	5	3	0	**11**	14	99
16:00	**6**	0	10	16	**56**	0	**21**	**77**	**4**	**3**	1	**8**	**9**	0	9	**18**	**119**
16:15	0	1	7	8	43	0	16	59	2	0	**2**	4	8	0	8	16	87
16:30	5	2	12	**19**	50	0	20	70	4	3	1	8	3	0	9	12	109
Total Volume	13	6	41	60	204	0	65	269	13	8	4	25	23	0	37	60	414
% App. Total	21.7	10	68.3		75.8	0	24.2		52	32	16		38.3	0	61.7		
PHF	.542	.500	.854	.789	.911	.000	.774	.873	.813	.667	.500	.781	.639	.000	.841	.833	.870
PASSENGER VEHICLES	13	6	40	59	200	0	65	265	13	8	4	25	23	0	37	60	409
% PASSENGER VEHICLES	100	100	97.6	98.3	98.0	0	100	98.5	100	100	100	100	100	0	100	100	98.8
SINGLE UNIT TRUCKS	0	0	1	1	4	0	0	4	0	0	0	0	0	0	0	0	5
% SINGLE UNIT TRUCKS	0	0	2.4	1.7	2.0	0	0	1.5	0	0	0	0	0	0	0	0	1.2
TRACTOR TRAILERS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% TRACTOR TRAILERS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

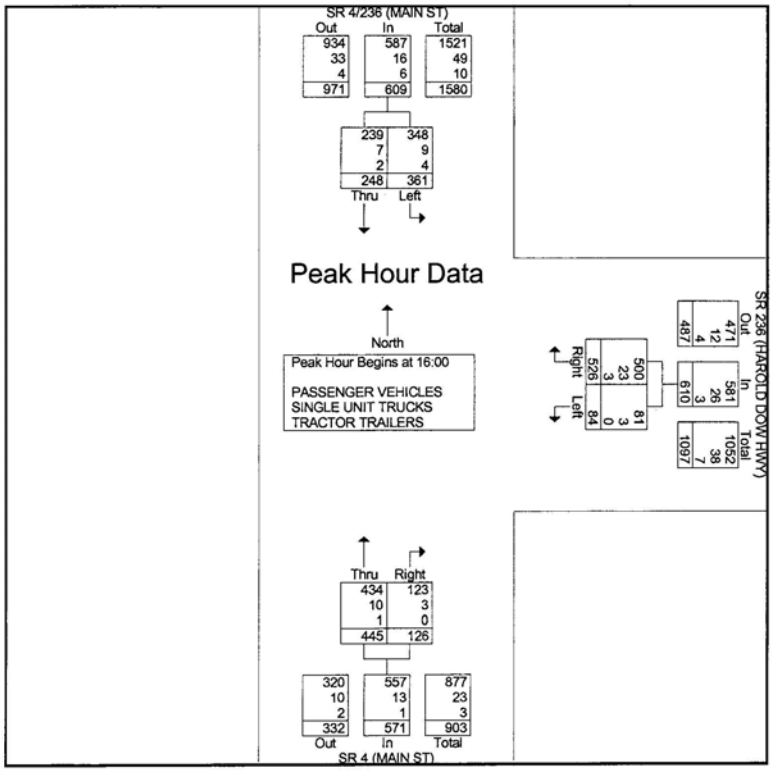


MAINE DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING DIVISION
TRAFFIC MONITORING SECTION

SOUTH BERWICK SUNNY/SHOWERS
SR4/236(MAIN ST),SR 236 (HAROLD DOW HWY)
LARRY RONCO/JOSH MACK
2388/2389

File Name : SOUTH BERWICK-012-TM
Site Code : 31250012
Start Date : 6/2/2006
Page No : 4

	SR 4/236 (MAIN ST) From North			SR 236 (HAROLD DOW HWY) From East			SR 4 (MAIN ST) From South			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 17:45 - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 16:00										
16:00	**70**	91	161	**135**	18	153	**36**	114	**150**	**464**
16:15	61	**102**	**163**	133	15	148	31	113	144	455
16:30	59	76	135	124	24	148	28	99	127	410
16:45	58	92	150	134	**27**	**161**	31	**119**	150	461
Total Volume	248	361	609	526	84	610	126	445	571	1790
% App. Total	40.7	59.3		86.2	13.8		22.1	77.9		
PHF	.886	.885	.934	.974	.778	.947	.875	.935	.952	.964
PASSENGER VEHICLES	239	348	587	500	81	581	123	434	557	1725
% PASSENGER VEHICLES	96.4	96.4	96.4	95.1	96.4	95.2	97.6	97.5	97.5	96.4
SINGLE UNIT TRUCKS	7	9	16	23	3	26	3	10	13	55
% SINGLE UNIT TRUCKS	2.8	2.5	2.6	4.4	3.6	4.3	2.4	2.2	2.3	3.1
TRACTOR TRAILERS	2	4	6	3	0	3	0	1	1	10
% TRACTOR TRAILERS	0.8	1.1	1.0	0.6	0	0.5	0	0.2	0.2	0.6

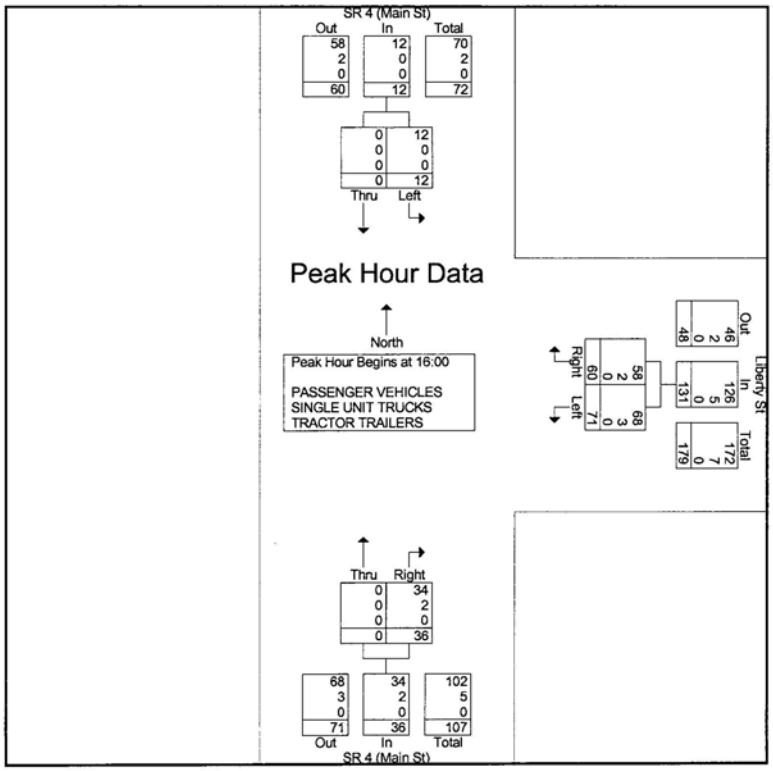


MAINE DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING DIVISION
TRAFFIC MONITORING SECTION

SOUTH BERWICK SUNNY/SHOWERS
SR4 (MAIN ST), LIBERTY ST
BRET LAPLANT
2199

File Name : SOUTH BERWICK-009-TM
Site Code : 31250009
Start Date : 6/2/2006
Page No : 4

	SR 4 (Main St) From North			Liberty St From East			SR 4 (Main St) From South			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 17:45 - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 16:00										
16:00	0	**7**	**7**	13	16	29	12	0	12	48
16:15	0	3	3	13	**21**	34	**14**	0	**14**	**51**
16:30	0	1	1	12	16	28	8	0	8	37
16:45	0	1	1	**22**	18	**40**	2	0	2	43
Total Volume	0	12	12	60	71	131	36	0	36	179
% App. Total	0	100		45.8	54.2		100	0		
PHF	.000	.429	.429	.682	.845	.819	.643	.000	.643	.877
PASSENGER VEHICLES	0	12	12	58	68	126	34	0	34	172
% PASSENGER VEHICLES	0	100	100	96.7	95.8	96.2	94.4	0	94.4	96.1
SINGLE UNIT TRUCKS	0	0	0	2	3	5	2	0	2	7
% SINGLE UNIT TRUCKS	0	0	0	3.3	4.2	3.8	5.6	0	5.6	3.9
TRACTOR TRAILERS	0	0	0	0	0	0	0	0	0	0
% TRACTOR TRAILERS	0	0	0	0	0	0	0	0	0	0

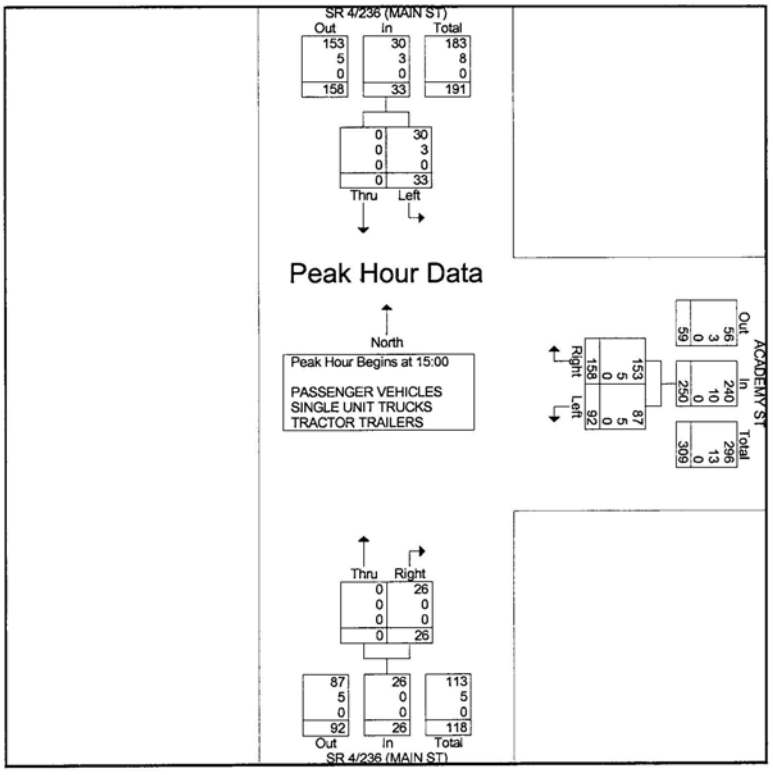


MAINE DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING DIVISION
TRAFFIC MONITORING SECTION

SOUTH BERWICK SUNNY/SHOWERS
SR 4/236 (MAIN ST), ACADEMY ST
AMANDA MORGAN
1978/2194

File Name : SOUTH BERWICK-015-TM
Site Code : 31250015
Start Date : 6/2/2006
Page No : 4

	SR 4/236 (MAIN ST) From North			ACADEMY ST From East			SR 4/236 (MAIN ST) From South			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 15:00										
15:00	0	**12**	**12**	**48**	**53**	**101**	6	0	6	**119**
15:15	0	11	11	38	13	51	**13**	0	**13**	75
15:30	0	5	5	26	18	44	3	0	3	52
15:45	0	5	5	46	8	54	4	0	4	63
Total Volume	0	33	33	158	92	250	26	0	26	309
% App. Total	0	100		63.2	36.8		100	0		
PHF	.000	.688	.688	.823	.434	.619	.500	.000	.500	.649
PASSENGER VEHICLES	0	30	30	153	87	240	26	0	26	296
% PASSENGER VEHICLES	0	90.9	90.9	96.8	94.6	96.0	100	0	100	95.8
SINGLE UNIT TRUCKS	0	3	3	5	5	10	0	0	0	13
% SINGLE UNIT TRUCKS	0	9.1	9.1	3.2	5.4	4.0	0	0	0	4.2
TRACTOR TRAILERS	0	0	0	0	0	0	0	0	0	0
% TRACTOR TRAILERS	0	0	0	0	0	0	0	0	0	0

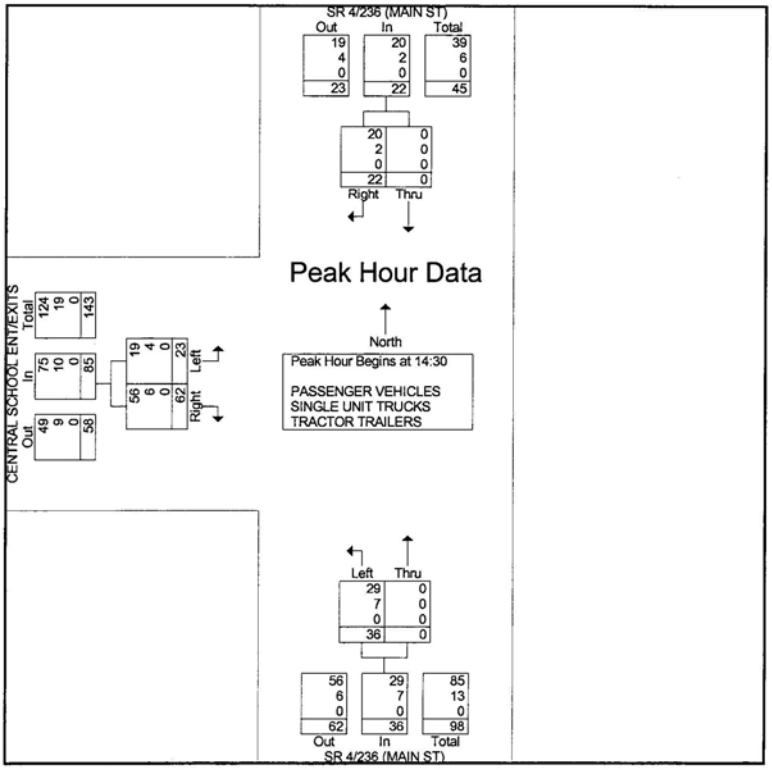


MAINE DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING DIVISION
TRAFFIC MONITORING SECTION

SOUTH BERWICK SUNNY/SHOWERS
SR 4/236 (MAIN ST), CENTRAL SCHOOL ENT/E
BOB KNOX
2196

File Name : SOUTH BERWICK-031-TM
Site Code : 31250031
Start Date : 6/2/2006
Page No : 4

	SR 4/236 (MAIN ST) From North			SR 4/236 (MAIN ST) From South			CENTRAL SCHOOL ENT/EXITS From West			
Start Time	Right	Thru	App. Total	Thru	Left	App. Total	Right	Left	App. Total	Int. Total
Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 14:30										
14:30	5	0	5	0	11	11	6	1	7	23
14:45	**14**	0	**14**	0	**14**	**14**	5	3	8	36
15:00	0	0	0	0	8	8	**37**	7	**44**	**52**
15:15	3	0	3	0	3	3	14	**12**	26	32
Total Volume	22	0	22	0	36	36	62	23	85	143
% App. Total	100	0		0	100		72.9	27.1		
PHF	.393	.000	.393	.000	.643	.643	.419	.479	.483	.688
PASSENGER VEHICLES	20	0	20	0	29	29	56	19	75	124
% PASSENGER VEHICLES	90.9	0	90.9	0	80.6	80.6	90.3	82.6	88.2	86.7
SINGLE UNIT TRUCKS	2	0	2	0	7	7	6	4	10	19
% SINGLE UNIT TRUCKS	9.1	0	9.1	0	19.4	19.4	9.7	17.4	11.8	13.3
TRACTOR TRAILERS	0	0	0	0	0	0	0	0	0	0
% TRACTOR TRAILERS	0	0	0	0	0	0	0	0	0	0

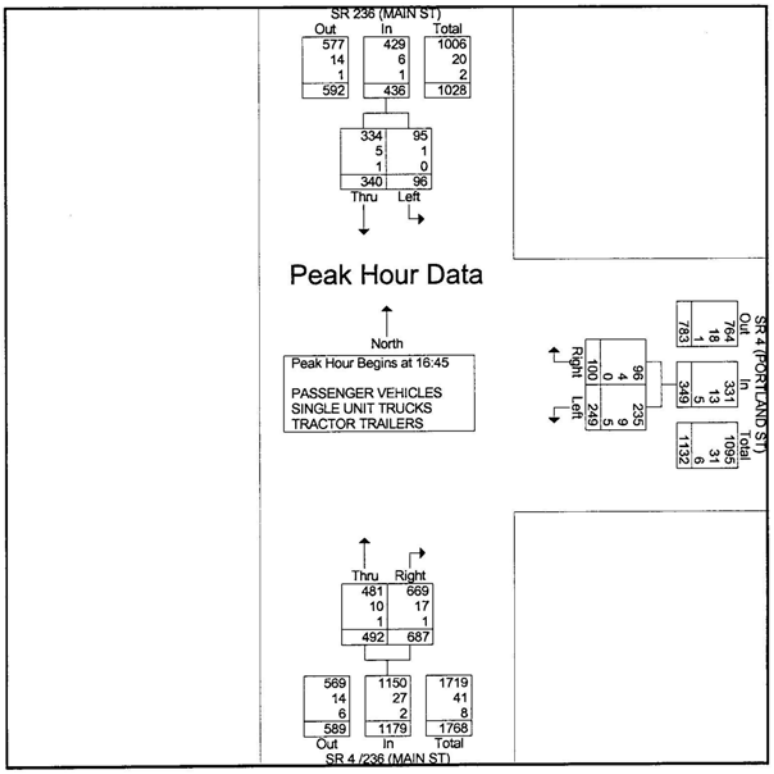


MAINE DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING DIVISION
TRAFFIC MONITORING SECTION

SOUTH BERWICK SUNNY/SHOWERS
SR 236 (MAIN ST),SR 4(PORTLAND) SR4/236
AMANDA LESSARD/CRYSTAL BROCK
2386/2387

File Name : SOUTH BERWICK-016-TM
Site Code : 31250016
Start Date : 6/2/2006
Page No : 4

	SR 236 (MAIN ST) From North			SR 4 (PORTLAND ST) From East			SR 4 /236 (MAIN ST) From South			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 17:45 - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 16:45										
16:45	65	14	79	24	**77**	**101**	**185**	120	**305**	485
17:00	75	**32**	107	**35**	55	90	163	**131**	294	491
17:15	93	28	121	22	58	80	169	121	290	491
17:30	**107**	22	**129**	19	59	78	170	120	290	**497**
Total Volume	340	96	436	100	249	349	687	492	1179	1964
% App. Total	78	22		28.7	71.3		58.3	41.7		
PHF	.794	.750	.845	.714	.808	.864	.928	.939	.966	.988
PASSENGER VEHICLES	334	95	429	96	235	331	669	481	1150	1910
% PASSENGER VEHICLES	98.2	99.0	98.4	96.0	94.4	94.8	97.4	97.8	97.5	97.3
SINGLE UNIT TRUCKS	5	1	6	4	9	13	17	10	27	46
% SINGLE UNIT TRUCKS	1.5	1.0	1.4	4.0	3.6	3.7	2.5	2.0	2.3	2.3
TRACTOR TRAILERS	1	0	1	0	5	5	1	1	2	8
% TRACTOR TRAILERS	0.3	0	0.2	0	2.0	1.4	0.1	0.2	0.2	0.4



Town name	Begin node_id	End node_id	Begin node location desc	End node location desc	BMP	EMP	Seg len (mi)	Speed lim (mph)	Shldr type- left	Shldr type- right	Shldr wid left (ft)	Shldr wid right (ft)	Num lanes	Thru lanes-num	Thru lanes-wid (ft)	Lt turn lanes-num	Lt turn lanes-wid (ft)	Rt turn lanes-num	Rt turn lanes-wid (ft)	PCR
Kittery	58935	51552	3110055 KIT,236NB CIR,236NB TO 1S CIR	3101123 KIT,RTE 236NB,UNDER BYP BRIDGE	1.08	1.12	0.04	25	Curb present	Paved	0	4	1	1	16	0	0	0	0	3.58
Kittery	51552	51551	3101123 KIT,RTE 236NB,UNDER BYP BRIDGE	3101122 KIT,RTE 236NB,SML.01W/O 1A BRG	1.12	1.13	0.01	25	Curb present	Paved	0	4	1	1	16	0	0	0	0	3.58
Kittery	51551	58946	3101122 KIT,RTE 236NB,SML.01W/O 1A BRG	3110066 KIT,RTE 236NB,RAMP TO BYP SB	1.13	1.15	0.02	25	Curb present	Paved	0	4	1	1	16	0	0	0	0	3.58
Kittery	58946	58928	3110066 KIT,RTE 236NB,RAMP TO BYP SB	3110048 KIT,RTE 1S,RTE 236NB	1.15	1.23	0.08	45	Curb present	Curb present	2	12	1	1	16	0	0	0	0	3.58
Kittery	58928	58929	3110048 KIT,RTE 1S,RTE 236NB	3110049 KIT,RTE 236NB,CUT FROM RTE 1S	1.23	1.27	0.04	45	Curb present	Curb present	2	12	1	1	16	0	0	0	0	3.58
Kittery	58929	54090	3110049 KIT,RTE 236NB,CUT FROM RTE 1S	3103702 KIT,236X,FUL S/O I-95	1.27	1.35	0.08	45	Curb present	Curb present	0	8	2	2	24	0	0	0	0	3.58
Kittery	54090	58859	3103702 KIT,236X,FUL S/O I-95	3109676 KIT,236NB,236S,RMP FR.SLIP RMP	1.35	1.46	0.11	45	Curb present	Curb present	0	8	2	2	24	0	0	0	0	3.58
Kittery	58859	58858	3109676 KIT,236NB,236S,RMP FR.SLIP RMP	3109675 KIT,236NB,RAMP TO SLIP RAMP	1.46	1.49	0.03	45	Curb present	Curb present	0	8	2	2	24	0	0	0	0	3.58
Kittery	58858	56674	3109675 KIT,236NB,RAMP TO SLIP RAMP	3107174 KIT,236X,236NB,236S,DANA AVE	1.49	1.57	0.08	45	Curb present	Curb present	0	8	2	2	36	0	0	0	0	4.24
Kittery	58858	56674	3109675 KIT,236NB,RAMP TO SLIP RAMP	3107174 KIT,236X,236NB,236S,DANA AVE	1.57	1.66	0.09	45	Curb present	Curb present	0	8	3	2	36	1	12	0	0	3.58
Kittery	56674	56675	3107174 KIT,236X,236NB,236S,DANA AVE	3107175 KIT,RT 236,MARTIN,STEVENSON	1.66	1.98	0.32	45	Paved	Paved	8	8	2	2	24	0	0	0	0	4.24
Kittery	56674	56675	3107174 KIT,236X,236NB,236S,DANA AVE	3107175 KIT,RT 236,MARTIN,STEVENSON	1.98	2.06	0.08	45	Paved	Paved	10	10	2	2	38	0	0	0	0	4.24
Kittery	56675	58074	3107175 KIT,RT 236,MARTIN,STEVENSON	3108611 KIT,RTE 236,MACKENZIE LA	2.06	2.42	0.36	45	Paved	Paved	8	8	2	2	24	0	0	0	0	4.39
Kittery	58074	56676	3108611 KIT,RTE 236,MACKENZIE LA	3107176 KIT,RTE 236,FERNALD RD	2.42	2.55	0.13	45	Paved	Paved	8	8	2	2	24	0	0	0	0	4.39
Kittery	54447	56677	3104112 KIT,RTE 236,FERNALD RD	TL - Eliot, Kittery	2.55	2.74	0.19	45	Paved	Paved	8	8	2	2	24	0	0	0	0	4.39
Eliot	56677	56678	TL - Eliot, Kittery	Int of BOLT HILL RD, HAROLD DOW HWY	2.74	2.76	0.02	45	Paved	Paved	8	8	2	2	24	0	0	0	0	4.39
Eliot	56678	56679	Int of BOLT HILL RD, HAROLD DOW HWY	Int of BEECH RD, HAROLD DOW HWY	2.76	3.68	0.92	35	Paved	Paved	8	8	2	2	24	0	0	0	0	4.35
Eliot	56679	56680	Int of BEECH RD, HAROLD DOW HWY	Int of BRADSTREET LN, HAROLD DOW HWY	3.68	4.48	0.8	45	Paved	Paved	8	8	2	2	24	0	0	0	0	4.33
Eliot	56680	56681	Int of BRADSTREET LN, HAROLD DOW HWY	Int of DEPOT RD, HAROLD DOW HWY	4.48	5.68	0.8	45	Paved	Paved	8	8	2	2	24	0	0	0	0	4.39
Eliot	56681	56987	Int of DEPOT RD, HAROLD DOW HWY	Non-Int HAROLD DOW HWY	5.68	6.12	0.44	45	Paved	Paved	8	8	2	2	24	0	0	0	0	4.28
Eliot	56987	51527	Non-Int HAROLD DOW HWY	Int of AMBUSH ROCK LN, HAROLD DOW HWY	6.12	6.55	0.43	45	Paved	Paved	8	8	2	2	24	0	0	0	0	4.19
Eliot	51527	56682	Int of AMBUSH ROCK LN, HAROLD DOW HWY	Int of HAROLD DOW HWY, STATE RD	6.55	7.04	0.49	45	Paved	Paved	8	8	2	2	24	0	0	0	0	4.19
Eliot	56682	56683	Int of HAROLD DOW HWY, STATE RD	Int of HAROLD DOW HWY, WORSTER RD	7.04	7.15	0.11	45	Paved	Paved	8	8	2	2	24	0	0	0	0	4.15
Eliot	56683	57897	Int of HAROLD DOW HWY, WORSTER RD	Int of HAROLD DOW HWY, HERON COVE RD	7.15	7.33	0.18	45	Paved	Paved	8	8	2	2	24	0	0	0	0	4.15
Eliot	57897	56684	Int of HAROLD DOW HWY, HERON COVE RD	Int of DOVER RD, GOODWIN RD, HAROLD DOW HWY	7.33	7.46	0.08	45	Paved	Paved	8	8	2	2	24	0	0	0	0	4.15
Eliot	56684	56685	nt of DOVER RD, GOODWIN RD, HAROLD DOW HW	TL - Eliot, South Berwick	7.46	7.92	0.46	45	Paved	Paved	8	8	2	2	24	0	0	0	0	4.29
South Berwick	56685	56686	TL - Eliot, South Berwick	Int of SHORE LN, ST RTE 236	7.92	8.09	0.17	55	Paved	Paved	8	8	2	2	24	0	0	0	0	4.29
South Berwick	56686	56687	Int of SHORE LN, ST RTE 236	Int of LORDS LN, ST RTE 236	8.09	8.58	0.38	55	Paved	Paved	8	8	2	2	24	0	0	0	0	4.25
South Berwick	56686	56687	Int of SHORE LN, ST RTE 236	Int of LORDS LN, ST RTE 236	8.09	8.58	0.11	55	Paved	Paved	8	8	2	2	24	0	0	0	0	4.29
South Berwick	56687	56688	Int of LORDS LN, ST RTE 236	Non-Int ST RTE 236	8.58	9.24	0.66	55	Paved	Paved	8	8	2	2	24	0	0	0	0	4.25
South Berwick	56688	56689	Non-Int ST RTE 236	Int of FIFES LN, ST RTE 236	9.24	9.95	0.71	55	Paved	Paved	8	8	2	2	24	0	0	0	0	4.28
South Berwick	56689	56690	Int of FIFES LN, ST RTE 236	Int of PINE ST, ST RTE 236, YORK WOODS RD	9.95	10.17	0.05	45	Paved	Paved	8	8	2	2	24	0	0	0	0	4.11
South Berwick	56689	56690	Int of FIFES LN, ST RTE 236	Int of PINE ST, ST RTE 236, YORK WOODS RD	9.95	10.17	0.02	45	Paved	Paved	8	8	2	2	24	0	0	0	0	4.28
South Berwick	56689	56690	Int of FIFES LN, ST RTE 236	Int of PINE ST, ST RTE 236, YORK WOODS RD	9.95	10.17	0.15	45	Paved	Paved	8	8	2	2	24	0	0	0	0	4.29
South Berwick	56690	56691	Int of PINE ST, ST RTE 236, YORK WOODS RD	Int of ROUTE 236, ST RTE 236	10.17	10.45	0.28	45	Paved	Paved	8	8	2	2	24	0	0	0	0	4.11
South Berwick	56691	58023	Int of ROUTE 236, ST RTE 236	Int of QUARRY DR, ROUTE 236	10.45	10.58	0.13	45	Paved	Paved	8	8	2	2	24	0	0	0	0	4.35
South Berwick	58023	59560	Int of QUARRY DR, ROUTE 236	Int of FARM GATE RD, ROUTE 236	10.58	10.74	0.16	45	Paved	Paved	8	8	2	2	24	0	0	0	0	4.35
South Berwick	59560	56692	Int of FARM GATE RD, ROUTE 236	Int of BRATTLE ST, ROUTE 236	10.74	10.79	0.05	45	Paved	Paved	8	8	2	2	24	0	0	0	0	4.35
South Berwick	56692	51940	Int of BRATTLE ST, ROUTE 236	3101514 S.BER,RTE.236,ACADEMY ST.	10.79	10.83	0.04	45	Paved	Paved	8	8	2	2	24	0	0	0	0	4.35
South Berwick	51940	56693	3101514 S.BER,RTE.236,ACADEMY ST.	3107193 S.BER,RTE.236,OLD MILL RD.	10.83	10.9	0.07	45	Paved	Paved	8	8	2	2	24	0	0	0	0	4.35
South Berwick	56693	54405	3107193 S.BER,RTE.236,OLD MILL RD.	3104069 S.BER,RTE.236,.41 BK.VINE ST.	10.9	10.98	0.02	45	Paved	Paved	8	8	2	2	24	0	0	0	0	4.35
South Berwick	56693	54405	3107193 S.BER,RTE.236,OLD MILL RD.	3104069 S.BER,RTE.236,.41 BK.VINE ST.	10.9	10.98	0.06	45	Paved	Paved	8	8	2	2	24	0	0	0	0	4.38
South Berwick	54405	56694	3104069 S.BER,RTE.236,.41 BK.VINE ST.	3107194 S.BER,RTE.236,VINE ST.	10.98	11.39	0.41	45	Paved	Paved	8	8	2	2	24	0	0	0	0	4.38
South Berwick	56694	56695	3107194 S.BER,RTE.236,VINE ST.	3107195 S.BER,RTE.236,.31 BK.MAIN ST.	11.39	11.57	0.17	45	Paved	Paved	8	8	2	2	24	0	0	0	0	4.16
South Berwick	56694	56695	3107194 S.BER,RTE.236,VINE ST.	3107195 S.BER,RTE.236,.31 BK.MAIN ST.	11.39	11.57	0.01	45	Paved	Paved	8	8	2	2	24	0	0	0	0	4.38
South Berwick	56695	56696	3107195 S.BER,RTE.236,.31 BK.MAIN ST.	3107197 S.BER,RTE.236,MAIN ST.	11.57	11.88	0.31	25	Paved	Paved	8	8	2	2	24	0	0	0	0	4.16
South Berwick	56696	56697	3107197 S.BER,RTE.236,MAIN ST.	3107198 S,BER,MAIN,ACADEMY ST.	11.88	11.95	0.07	25	Curb present	Curb present	0	6	3	2	24	0	0	0	0	3.45
South Berwick	56697	57011	3107198 S,BER,MAIN,ACADEMY ST.	3107530 S.BER,MAIN,PAUL ST.	11.95	12.06	0.01	25	Curb present	Curb present	0	6	3	2	24	0	0	0	0	3.45
South Berwick	56697	57011	3107198 S,BER,MAIN,ACADEMY ST.	3107530 S.BER,MAIN,PAUL ST.	11.95	12.06	0.01	25	Curb present	Curb present	0	6	3	2	24	0	0	0	0	3.45
South Berwick	56697	57011	3107198 S,BER,MAIN,ACADEMY ST.	3107530 S.BER,MAIN,PAUL ST.	11.95	12.06	0.01	25	Curb present	Curb present	8	6	3	2	24	0	0	0	0	3.82
South Berwick	56697	57011	3107198 S,BER,MAIN,ACADEMY ST.	3107530 S.BER,MAIN,PAUL ST.	11.95	12.06	0.01	25	Curb present	Curb present	8	8	2	2	20	0	0	0	0	3.82
South Berwick	56697	57011	3107198 S,BER,MAIN,ACADEMY ST.	3107530 S.BER,MAIN,PAUL ST.	11.95	12.06	0.01	25	Curb present	Curb present	8	8	2	2	20	0	0	0	0	3.82
South Berwick	56697	57011	3107198 S,BER,MAIN,ACADEMY ST.	3107530 S.BER,MAIN,PAUL ST.	11.95	12.06	0.02	25	Curb present	Curb present	8	8	3	2	20	0	0	0	0	3.82
South Berwick	56697	57011	3107198 S,BER,MAIN,ACADEMY ST.	3107530 S.BER,MAIN,PAUL ST.	11.95	12.06	0.03	25	Curb present	Curb present	8	8	3	2	20	0	0	1	13	3.82
South Berwick	56697	57011	3107198 S,BER,MAIN,ACADEMY ST.	3107530 S.BER,MAIN,PAUL ST.	11.95	12.06	0.01	25	Curb present	Curb present	8	8	3	2	20	0	0	1	13	3.82
South Berwick	57011	56698	3107530 S.BER,MAIN,PAUL ST.	3107199 S,BER,MAIN,PORTLAND ST.	12.06	12.09	0.03	25	Curb present	Curb present	8	8	3	2	20	0	0	1	13	3.82

JUL 5,2006 AT 09:47

TINACC30

MAINE DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING, ACCIDENT RECORDS SECTION

ACCIDENT SUMMARY INPUT

TYPE OF STUDY: NODES AND LINKS TYPE OF REQUEST: ACCIDENT I & II WITH LINK DETAIL
STUDY PERIOD: FROM MONTH 01 YEAR 2003 TO MONTH 12 YEAR 2005

INPUT COMMENTS

REQUEST: RT 236
TOWN: KITTERY-SOUTH BERWICK

INPUT DATA

ROUTE	COUNTY	FIRST NODE	EXCLUDE FIRST	DISTANCE	SECOND NODE	LAST NODE	EXCLUDE LAST	DISTANCE
0236X	31	10055	0	0.00	01123	07199	0	0.00
0236S		10056	0	0.00	10051	09676	1	0.00
		09676	1	0.00	10073	07174	1	0.00

MAINE DEPARTMENT OF TRANSPORTATION
TINACC30 TRAFFIC ENGINEERING ACCIDENT RECORDS SECTION

ACCIDENT SUMMARY I

COUNTY TOWN#	LOW NODE	HIGH NODE	STREET NAME OR ROUTE #	U/R	TOTAL ACCTS	LINK LENGTH	INJURY ACCIDENTS K	A	B	C	PD	PERCENT INJURY	ANNUAL HM VEH-MILES	ANNUAL M ENT-VEHS	ACCIDENT-RATES LINK	NODE	CRITI RATE	CRF
31	10055	KIT	236NB CIR 236NB TO	2	0		0	0	0	0	0	0 0		3 996		0 00	0 40	0 00
31	01123	KIT,	RTE 236NB, UNDER BYP	2	0		0	0	0	0	0	0 0		4 256		0 00	0 39	0 00
31	01122	KIT	RTE 236NB SML 01W/O	2	0		0	0	0	0	0	0 0		4 256		0 00	0 39	0 00
31	10066	KIT	RTE 236NB RAMP TO B	2	0		0	0	0	0	0	0 0		4 256		0 00	0 39	0 00
31	10048	KIT	RTE 1S RTE 236NB	2	6		0	0	0	1	5	16 7		6 011		0 33	0 36	0 00
31	10049	KIT	RTE 236NB, CUT FROM	4	2		0	0	0	0	2	0 0		4 022		0 17	0 34	0 00
31	03702	KIT,	236X FUL S/O I-95	1	0		0	0	0	0	0	0 0		4 022		0 00	0 34	0 00
31	09676	KIT	236NB 236S RMP FR S	1	3		0	0	0	1	2	33 3		6 446		0 16	0 30	0 00
31	09675	KIT	236NB RAMP TO SLIP	1	1		0	0	0	1	0	100 0		4 142		0 08	0 33	0 00
31	07174	KIT	236X 236NB, 236S DAN	1	3		0	0	1	1	1	66 7		7 199		0 14	0 29	0 00
31	P07175	KIT	RT 236 MARTIN STEVE	9	8		0	0	2	1	5	37 5		14 396		0 19	0 95	0 00
31	08611	KIT,	RTE 236 MACKENZIE L	1	3		0	0	1	0	2	33 3		6 745		0 15	0 29	0 00
31	07176	KIT	RTE 236 FERNALD RD	1	0		0	0	0	0	0	0 0		6 663		0 00	0 29	0 00
31	04112	KIT	RTE 236 FERNALD RD	1	1		0	0	0	0	1	0 0		6 679		0 05	0 29	0 00
31	07177	TL	ELIOT-KITTERY	1	0		0	0	0	0	0	0 0		6 469		0 00	0 30	0 00
31	07178	ELT	RTE 236 BOLT HILL R	1	9		0	0	2	2	5	44 4		6 509		0 46	0 30	1 53 ✓
31	07179	ELT	RTE 236 BEECH RD	9	21		0	0	1	3	17	19 0		7 059		0 99	1 08	0 00
31	07180	ELT	RTE 236 BRADSTREET	1	4		0	0	1	0	3	25 0		5 754		0 23	0 31	0 00
31	07181	ELT	RTE 236 DEPOT RD	9	11		0	0	0	2	9	18 2		6 086		0 60	1 11	0 00
31	07502	ELT	RTE 236 43S/O AMBU	1	0		0	0	0	0	0	0 0		5 493		0 00	0 31	0 00
31	01098	ELT	RTE 236 AMBUSH ROCK	1	4		0	0	1	1	2	50 0		5 498		0 24	0 31	0 00
31	07182	ELT	RTE 103 RTE 236	1	2		0	0	0	0	2	0 0		5 863		0 11	0 30	0 00
31	07183	ELT	RTE 236 WORSTER RD	1	1		0	0	0	0	1	0 0		5 838		0 06	0 30	0 00
31	08434	ELT,	RTE 236 HERON COVE	1	0		0	0	0	0	0	0 0		5 675		0 00	0 31	0 00
31	07184	ELT	RTE 236 RTE 101	9	24		0	0	0	6	18	25 0		6 314		1 27	1 10	1 15 ✓
31	07185	TL	SOUTH BERWICK-ELIOT	1	0		0	0	0	0	0	0 0		4 486		0 00	0 33	0 00
31	07186	S BER	RTE 236 SHORE LA	1	0		0	0	0	0	0	0 0		4 517		0 00	0 33	0 00
31	07187	S BER	RTE 236 LORDS LA	1	1		0	0	0	0	1	0 0		4 619		0 07	0 32	0 00
31	07188	S BER	RTE 236 71 BK RD	1	1		0	0	0	0	1	0 0		4 650		0 07	0 32	0 00
31	07189	S BER	RTE 236 FILES LA	1	1		0	0	0	0	1	0 0		4 794		0 07	0 32	0 00
31	07190	S BER	91X 236X OLD SOUT	1	11		0	0	1	2	8	27 3		5 648		0 65	0 31	2 10 ✓
31	07191	S BER	RTE 236 BR#5610	4	0		0	0	0	0	0	0 0		5 018		0 00	0 32	0 00
31	08560	S BER	RTE236 QUARRY DRI	4	10		0	0	1	4	5	50 0		5 936		0 56	0 30	1 87 ✓
31	07192	S BER	RTE 236 BRATTLE S	4	2		0	0	0	1	1	50 0		5 798		0 11	0 31	0 00
31	01514	S BER	RTE 236 ACADEMY S	4	2		0	0	1	1	0	100 0		5 592		0 12	0 31	0 00
31	07193	S BER	RTE 236 OLD MILL	4	1		0	1	0	0	0	100 0		5 243		0 06	0 31	0 00
31	04069	S BER	RTE 236 41 BK VI	4	0		0	0	0	0	0	0 0		4 869		0 00	0 32	0 00
31	P07194	S BER	RTE 236 VINE ST	4	9		0	0	1	3	5	44 4		10 218		0 29	0 26	1 12 ✓
31	07195	S BER	RTE 236 31 BK MA	4	0		0	0	0	0	0	0 0		4 805		0 00	0 32	0 00
31	07197	S BER	RTE 236 MAIN ST	4	6		0	0	0	1	5	16 7		7 210		0 28	0 29	0 00
31	07198	S BER	MAIN ACADEMY ST	4	3		0	0	0	1	2	33 3		7 121		0 14	0 29	0 00
31	07530	S BER	MAIN, PAUL ST	4	2		0	0	0	0	2	0 0		7 119		0 09	0 29	0 00
31	07199	S BER,	MAIN PORTLAND ST	4	10		0	1	0	2	7	30 0		7 984		0 42	0 28	1 50 ✓
31	10056	KIT	RTE 1S CUT FROM 236	2	3		0	0	1	0	2	33 3		3 996		0 25	0 40	0 00
31	10051	KIT	RTE 1S SML 01W/O 1A	4	0		0	0	0	0	0	0 0		3 007		0 00	0 36	0 00
31	10084	KIT	1S, RAMP 236S TO 1AS	2	0		0	0	0	0	0	0 0		6 590		0 00	0 35	0 00

MAINE DEPARTMENT OF TRANSPORTATION
TINACC30 TRAFFIC ENGINEERING ACCIDENT RECORDS SECTION

ACCIDENT SUMMARY I

COUNTY TOWN#	LOW NODE	HIGH NODE	STREET NAME OR ROUTE #	U/R	TOTAL ACCTS	LINK LENGTH	INJURY ACCIDENTS K	A	B	C	PD	PERCENT INJURY	ANNUAL HM VEH-MILES	ANNUAL M ENT-VEHS	ACCIDENT-RATES LINK	NODE	CRITI RATE	CRF
31	10050	KIT	RTE 1S RTE 236S	4	5		0	0	0	1	4	20 0		6 595		0 25	0 30	0 00
31	10085	KIT	236S,RAMP 95NB TO 2	4	11		0	0	0	3	8	27 3		4 471		0 82	0 33	2 48 ✓
31	10076	KIT	BYP SB CONN,BYP SB	1	0		0	0	0	0	0	0 0		3 573		0 00	0 35	0 00
31	10075	KIT	RMP FR SLIP RMP OFF	1	2		0	0	0	0	2	0 0		3 573		0 19	0 35	0 00
31	10073	KIT	236S RAMP TO SLIP R	1	0		0	0	0	0	0	0 0		3 858		0 00	0 34	0 00
			NODE SUBTOTALS-		183		0	2	14	38	129	29 5		290 937		0 21	0 22	0 00

TINACC30

MAINE DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING ACCIDENT RECORDS SECTION

ACCIDENT SUMMARY I

COUNTY TOWN#	LOW NODE	HIGH NODE	STREET NAME OR ROUTE #	U/R	TOTAL ACCTS	LINK LENGTH	INJURY ACCIDENTS K	A	B	C	PD	PERCENT INJURY	ANNUAL HM VEH-MILES	ANNUAL M ENT-VEHS	ACCIDENT-RATES LINK	NODE	CRITI RATE	CRF
31130	01123	10055	ROGERS RD	1	1	0 04	0	0	0	0	1	0 0	0 00170		196 08		442 20	0 00
	01122	01123		4	1	0 01	0	0	0	0	1	0 0	0 00043		775 19		257 28	3 01
	01122	10066		4	0	0 02	0	0	0	0	0	0 0	0 00085		0 00		281 44	0 00
	10048	10066		4	0	0 08	0	0	0	0	0	0 0	0 00311		0 00		227 22	0 00
	10048	10049		4	0	0 04	0	0	0	0	0	0 0	0 00155		0 00		263 04	0 00
	03702	10049		4	0	0 08	0	0	0	0	0	0 0	0 00322		0 00		324 08	0 00
	03702	09676		1	2	0 11	0	0	0	0	2	0 0	0 00442		150 83		298 61	0 00
	09675	09676		1	2	0 03	0	0	1	1	0	100 0	0 00124		537 63		406 43	1 32
	07174	09675		1	2	0 17	0	0	0	0	2	0 0	0 00598		111 48		320 68	0 00
	07174	07175		1	2	0 40	0	0	1	0	1	50 0	0 02701		24 68		226 45	0 00
	07175	08611		1	3	0 36	0	0	1	1	1	66 7	0 02426		41 22		231 43	0 00
	07176	08611		1	2	0 09	0	0	1	0	1	50 0	0 00598		111 48		320 68	0 00
	04112	07176	FERNALD RD	1	0	0 04	0	0	0	0	0	0 0	0 00265		0 00		395 61	0 00
	04112	07177	ROGERS RD	1	1	0 19	0	0	0	0	1	0 0	0 01231		27 08		268 66	0 00
31090	07177	07178	RTE 236	1	4	0 02	0	0	0	1	3	25 0	0 00129		1033 59		471 80	2 19
	07178	07179		1	25	0 92	0	1	6	1	17	32 0	0 05685		146 58		197 68	0 00
	07179	07180		1	12	0 80	0	0	0	2	10	16 7	0 04649		86 04		204 54	0 00
	07180	07181		1	19	1 20	0	1	3	4	11	42 1	0 06728		94 13		192 40	0 00
	07181	07502		1	16	0 44	0	0	1	3	12	25 0	0 02425		219 93		231 45	0 00
	01098	07502		1	5	0 43	0	0	0	0	5	0 0	0 02354		70 80		232 87	0 00
	01098	07182		1	6	0 49	0	0	0	0	6	0 0	0 02670		74 91		226 98	0 00
	07182	07183		1	3	0 11	0	0	1	0	2	33 3	0 00638		156 74		315 45	0 00
	07183	08434		1	1	0 18	0	0	0	0	1	0 0	0 01018		32 74		281 04	0 00
	07184	08434		1	2	0 13	0	0	0	0	2	0 0	0 00727		91 70		305 25	0 00
	07184	07185		1	6	0 46	0	0	0	2	4	33 3	0 02063		96 95		239 40	0 00
31250	07185	07186	0236X	1	3	0 17	0	0	2	0	1	66 7	0 00763		131 06		301 59	0 00
	07186	07187		1	3	0 49	0	0	0	0	3	0 0	0 02209		45 27		235 97	0 00
	07187	07188		1	5	0 66	0	0	0	2	3	40 0	0 03011		55 35		221 64	0 00
	07188	07189		1	7	0 71	0	0	0	2	5	28 6	0 03364		69 36		216 96	0 00
	07189	07190		1	2	0 22	0	0	0	2	0	100 0	0 00969		68 80		284 40	0 00
	07190	07191		1	2	0 28	0	0	0	0	2	0 0	0 01405		47 45		260 58	0 00
	07191	08560	ROUTE 236	4	4	0 13	0	0	0	2	2	50 0	0 00652		204 50		270 07	0 00
	07192	08560		4	0	0 21	0	0	0	0	0	0 0	0 01177		0 00		232 98	0 00
	01514	07192		4	1	0 04	0	0	0	0	1	0 0	0 00230		144 93		352 82	0 00
	01514	07193		4	0	0 07	0	0	0	0	0	0 0	0 00365		0 00		313 79	0 00
	04069	07193		4	4	0 08	0	0	1	0	3	25 0	0 00390		341 88		308 46	1 11
	04069	07194		4	5	0 41	0	0	2	0	3	40 0	0 01995		83 54		206 06	0 00
	07194	07195		4	2	0 18	0	0	0	0	2	0 0	0 00866		76 98		251 30	0 00
	07195	07197		4	2	0 31	0	0	0	0	2	0 0	0 01488		44 80		220 33	0 00
	07197	07198	MAIN ST	4	1	0 07	0	0	0	0	1	0 0	0 00448		74 40		297 57	0 00
	07198	07530		4	5	0 11	0	0	0	3	2	60 0	0 00767		217 30		259 11	0 00
	07199	07530		4	2	0 03	0	0	1	0	1	50 0	0 00213		312 99		359 53	0 00
31130	10051	10056	ROGERS RD SB	4	0	0 05	0	0	0	0	0	0 0	0 00150		0 00		390 25	0 00
	10051	10084		4	1	0 07	0	0	0	0	1	0 0	0 00211		157 98		360 36	0 00
	10050	10084		4	0	0 04	0	0	0	0	0	0 0	0 00264		0 00		340 88	0 00
	10050	10085		4	0	0 05	0	0	0	0	0	0 0	0 00224		0 00		355 12	0 00

TINACC30

MAINE DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING ACCIDENT RECORDS SECTION

ACCIDENT SUMMARY I

COUNTY TOWN#	LOW NODE	HIGH NODE	STREET NAME OR ROUTE #	U/R	TOTAL ACCTS	LINK LENGTH	INJURY ACCIDENTS K	A	B	C	PD	PERCENT INJURY	ANNUAL HM VEH-MILES	ANNUAL M ENT-VEHS	ACCIDENT-RATES LINK	NODE	CRITI RATE	CRF
	10076	10085		4	0	0 07	0	0	0	0	0	0 0	0 00250		0 00		345 58	0 00
	10075	10076		1	0	0 06	0	0	0	0	0	0 0	0 00214		0 00		359 12	0 00
	09676	10075		1	0	0 05	0	0	0	0	0	0 0	0 00115		0 00		412 61	0 00
	09676	10073		1	0	0 03	0	0	0	0	0	0 0	0 00069		0 00		447 38	0 00
	07174	10073		1	0	0 17	0	0	0	0	0	0 0	0 00656		0 00		269 65	0 00
			LINK SUBTOTALS-		164	11 60	0	2	21	26	115	29 9	0 61022		89 58		145 44	0 00
			GRAND TOTALS-		347	11 60	0	4	35	64	244	29 7	0 61022	290 937	189 54		185 16	1 02

TINACC30

MAINE DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING ACCIDENT RECORDS SECTION

ACCIDENT SUMMARY II - CHARACTERISTICS

	HOUR OF DAY																								
	---AM---												---PM---												
DAY OF WEEK	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	UNKNOWN	TOTAL	
SUNDAY	0	1	1	0	0	0	0	0	1	1	2	0	2	1	2	1	2	5	3	4	3	1	1	1	0	32	S
MONDAY	0	1	0	0	1	3	1	5	4	2	3	4	3	4	0	5	6	4	2	2	2	3	1	0	0	56	M
TUESDAY	0	0	1	0	0	1	2	7	3	4	2	6	1	1	3	3	9	5	3	2	2	1	1	0	0	57	T
WEDNESDAY	1	0	1	1	0	0	3	8	4	1	1	2	2	4	6	3	4	2	3	1	0	0	0	0	0	47	W
THURSDAY	0	0	0	0	0	2	2	1	3	3	0	3	7	1	4	6	7	7	2	2	0	0	2	0	0	52	T
FRIDAY	0	0	1	0	1	0	0	8	6	1	7	4	2	2	8	11	8	4	3	0	2	0	1	1	0	70	F
SATURDAY	0	0	0	1	0	0	0	0	2	1	4	5	3	6	1	2	1	2	2	2	0	1	0	0	0	33	S
UNKNOWN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	U
TOTAL	1	2	4	2	2	6	8	29	23	13	19	24	20	19	24	31	37	29	18	13	9	6	6	2	0	347	T

	YEAR		
	TOTAL	2003	2004	2005
JANUARY	37	12	6	19
FEBRUARY	15	6	3	6
MARCH	18	9	1	8
APRIL	21	4	9	8
MAY	26	11	7	8
JUNE	36	12	12	12
JULY	29	12	6	11
AUGUST	33	5	16	12
SEPTEMBER	36	9	15	12
OCTOBER	31	14	10	7
NOVEMBER	30	8	9	13
DECEMBER	35	12	5	18
UNKNOWN	0	0	0	0
TOTAL	347	114	99	134

TYPE OF UNIT			
01-2 DOOR	58	10-BOBTAIL	1
02-4 DOOR	261	20-2ADT	9
03-CONVERTBLE	2	30-3ASU	2
04-STAT WGN	27	40-4ASU	0
05-VAN/CAMPER	45	21-2ASA	2
06-PICKUP TRK	106	22-2ATA	2
12-SCHOOL BUS	3	31-3ASA	1
13-MOTOR HOME	1	32-3ATA	3
14-MOTORCYCLE	5	33-3ATR	4
15-MOPED	0	42-4ATA	1
16-MOTOR BIKE	0	25-2AT1A2ATR	0
17-BICYCLE	2	35-3AT1A2ATR	1
18-SNOWMOBILE	0	36-3AT2A2ATR	0
19-PEDESTRIAN	0	50-OTHER	2
23-ATV	0	81-2AX CM BUS	0
07-SUV	91	82-3AX CM BUS	0
99-UNK/OTH	6	98-FARM/TRAC	0
TOTAL	635		

MAINE DEPARTMENT OF TRANSPORTATION
TINACC30 TRAFFIC ENGINEERING ACCIDENT RECORDS SECTION

ACCIDENT SUMMARY II - CHARACTERISTICS

APPARENT CONTRIBUTING FACTOR	DR 1	DR 2	DR 3	DR 4	DR 5	OTHER	TOTAL
HUMAN FACTORS							
NO INPROPER DRIVING	123	169	13	1	0	0	306
FAIL TO YIELD R-WAY	38	11	2	0	0	0	51
ILLEGAL UNSAFE SPEED	6	2	0	0	0	0	8
FOLLOW TOO CLOSE	11	7	3	0	0	0	21
DISREGARD TRAF CONTROL	5	4	0	0	0	0	9
DRIVING LEFT OF CENTER	3	1	0	0	0	0	4
IMPROPER PASSING	0	2	0	0	0	0	2
IMPROPER LANE CHANGE	4	3	0	0	0	0	7
IMPROPER START/STOP	0	1	0	0	0	0	1
IMPROPER TURN	9	2	0	0	0	0	11
UNSAFE BACKING	0	1	0	0	0	0	1
NO PROPER SIGNAL	1	0	0	0	0	0	1
IMPEDING TRAFFIC	2	2	1	0	0	0	5
DRIVER INATTENTION	101	55	0	0	0	0	156
DRIVER INEXPERIENCE	7	3	0	0	0	0	10
PEDESTRIAN VIOLATION	0	0	0	0	0	0	0
PHYSICAL IMPAIRMENT	8	0	1	0	0	0	9
VISION OBSCURED GLASS	1	0	0	0	0	0	1
VISION OBSCURED LIGHT	2	0	0	0	0	0	2
VISION OBSCURED OTHER	5	1	0	0	0	0	6
OTHER HUMAN FACTOR	8	2	0	0	0	0	10
HIT & RUN	0	0	0	0	0	0	0
VEHICULAR FACTORS							
DEFECTIVE BRAKES	3	1	0	0	0	0	4
DEFECTIVE TIRE	2	0	0	0	0	0	2
DEFECTIVE LIGHTS	1	0	0	0	0	0	1
DEFECTIVE SUSPENSION	0	0	0	0	0	0	0
DEFECTIVE STEERING	0	0	0	0	0	0	0
OTHER VEHICLE DEFECT	0	0	0	0	0	0	0
UNKNOWN	6	1	0	0	0	0	7
TOTAL	346	268	20	1	0	0	635

APPARENT PHYSICAL CONDITION	DR 1	DR 2	DR 3	DR 4	DR 5	OTHER	TOTAL
NORMAL	325	264	19	1	0	0	609
UNDER THE INFLUENCE	6	0	0	0	0	0	6
DRINKING	2	1	0	0	0	0	3
USING DRUGS	0	0	0	0	0	0	0
ASLEEP	3	0	0	0	0	0	3
FATIGUED	3	1	0	0	0	0	4
ILL	0	0	0	0	0	0	0
HANDICAPPED	2	0	0	0	0	0	2
OTHER/UNKNOWN	5	2	1	0	0	0	8
TOTAL	346	268	20	1	0	0	635

AGE	TYPE OF UNIT: DRIVER	BIKE	SNOW SLED	PED	ATV	TOTAL
9-UNDER	0	0	0	0	0	0
10-14	0	0	0	0	0	0
15-19	102	1	0	0	0	103
20-24	56	0	0	0	0	56
25-29	48	0	0	0	0	48
30-39	128	0	0	0	0	128
40-49	126	0	0	0	0	126
50-59	83	0	0	0	0	83
60-69	40	1	0	0	0	41
70-79	33	0	0	0	0	33
80-OVER	15	0	0	0	0	15
UNKNOWN	2	0	0	0	0	2
TOTAL	633	2	0	0	0	635

MAINE DEPARTMENT OF TRANSPORTATION
TINACC30 TRAFFIC ENGINEERING, ACCIDENT RECORDS SECTION

ACCIDENT SUMMARY II - CHARACTERISTICS

APPARENT CONTRIBUTING FACTOR	DR 1	DR 2	DR 3	DR 4	DR 5	OTHER	TOTAL
HUMAN FACTORS							
NO INPROPER DRIVING	123	169	13	1	0	0	306
FAIL TO YIELD R-WAY	38	11	2	0	0	0	51
ILLEGAL UNSAFE SPEED	6	2	0	0	0	0	8
FOLLOW TOO CLOSE	11	7	3	0	0	0	21
DISREGARD TRAF CONTROL	5	4	0	0	0	0	9
DRIVING LEFT OF CENTER	3	1	0	0	0	0	4
IMPROPER PASSING	0	2	0	0	0	0	2
IMPROPER LANE CHANGE	4	3	0	0	0	0	7
IMPROPER START/STOP	0	1	0	0	0	0	1
IMPROPER TURN	9	2	0	0	0	0	11
UNSAFE BACKING	0	1	0	0	0	0	1
NO PROPER SIGNAL	1	0	0	0	0	0	1
IMPEDING TRAFFIC	2	2	1	0	0	0	5
DRIVER INATTENTION	101	55	0	0	0	0	156
DRIVER INEXPERIENCE	7	3	0	0	0	0	10
PEDESTRIAN VIOLATION	0	0	0	0	0	0	0
PHYSICAL IMPAIRMENT	8	0	1	0	0	0	9
VISION OBSCURED GLASS	1	0	0	0	0	0	1
VISION OBSCURED LIGHT	2	0	0	0	0	0	2
VISION OBSCURED OTHER	5	1	0	0	0	0	6
OTHER HUMAN FACTOR	8	2	0	0	0	0	10
HIT & RUN	0	0	0	0	0	0	0
VEHICULAR FACTORS							
DEFECTIVE BRAKES	3	1	0	0	0	0	4
DEFECTIVE TIRE	2	0	0	0	0	0	2
DEFECTIVE LIGHTS	1	0	0	0	0	0	1
DEFECTIVE SUSPENSION	0	0	0	0	0	0	0
DEFECTIVE STEERING	0	0	0	0	0	0	0
OTHER VEHICLE DEFECT	0	0	0	0	0	0	0
UNKNOWN	6	1	0	0	0	0	7
TOTAL	346	268	20	1	0	0	635

APPARENT PHYSICAL CONDITION	DR 1	DR 2	DR 3	DR 4	DR 5	OTHER	TOTAL
NORMAL	325	264	19	1	0	0	609
UNDER THE INFLUENCE	6	0	0	0	0	0	6
DRINKING	2	1	0	0	0	0	3
USING DRUGS	0	0	0	0	0	0	0
ASLEEP	3	0	0	0	0	0	3
FATIGUED	3	1	0	0	0	0	4
ILL	0	0	0	0	0	0	0
HANDICAPPED	2	0	0	0	0	0	2
OTHER/UNKNOWN	5	2	1	0	0	0	8
TOTAL	346	268	20	1	0	0	635

AGE	TYPE OF UNIT: DRIVER	BIKE	SNOW SLED	PED	ATV	TOTAL
9-UNDER	0	0	0	0	0	0
10-14	0	0	0	0	0	0
15-19	102	1	0	0	0	103
20-24	56	0	0	0	0	56
25-29	48	0	0	0	0	48
30-39	128	0	0	0	0	128
40-49	126	0	0	0	0	126
50-59	83	0	0	0	0	83
60-69	40	1	0	0	0	41
70-79	33	0	0	0	0	33
80-OVER	15	0	0	0	0	15
UNKNOWN	2	0	0	0	0	2
TOTAL	633	2	0	0	0	635

TINACC30

MAINE DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING ACCIDENT RECORDS SECTION

ACCIDENT SUMMARY II - CHARACTERISTICS

WEATHER	LIGHT CONDITION	ROAD SURFACE: DRY	WET	SNOW SAND	ICE SAND	MUD	DEBRIS	OIL	SNOW	ICE	OTHER	TOTAL
CLEAR	DAWN	3	0	0	0	0	0	0	0	1	0	4
	DAYLIGHT	165	5	0	2	0	0	0	1	3	0	176
(222)	DUSK	9	0	0	0	0	0	0	0	0	0	9
	DARK-LIGHTS	16	0	0	2	0	0	0	0	0	0	18
	DARK NO LIGHTS	14	0	0	0	0	0	0	0	0	0	14
	DARK LIGHTS OFF	1	0	0	0	0	0	0	0	0	0	1
	OTHER	0	0	0	0	0	0	0	0	0	0	0
	UNKNOWN	0	0	0	0	0	0	0	0	0	0	0
RAIN	DAWN	0	1	0	0	0	0	0	0	0	0	1
	DAYLIGHT	0	28	0	0	0	0	0	0	0	0	28
(35)	DUSK	0	0	0	0	0	0	0	0	0	0	0
	DARK-LIGHTS	0	2	0	0	0	0	0	0	0	0	2
	DARK NO LIGHTS	0	4	0	0	0	0	0	0	0	0	4
	DARK LIGHTS OFF	0	0	0	0	0	0	0	0	0	0	0
	OTHER	0	0	0	0	0	0	0	0	0	0	0
	UNKNOWN	0	0	0	0	0	0	0	0	0	0	0
SNOW	DAWN	0	0	0	0	0	0	0	0	0	0	0
	DAYLIGHT	0	2	3	2	0	0	0	4	1	0	12
(21)	DUSK	0	0	1	0	0	0	0	0	0	0	1
	DARK-LIGHTS	0	0	1	0	0	0	0	2	1	0	4
	DARK NO LIGHTS	1	0	0	1	0	0	0	2	0	0	4
	DARK LIGHTS OFF	0	0	0	0	0	0	0	0	0	0	0
	OTHER	0	0	0	0	0	0	0	0	0	0	0
	UNKNOWN	0	0	0	0	0	0	0	0	0	0	0
SLEET/HAIL	DAWN	0	0	0	0	0	0	0	0	0	0	0
	DAYLIGHT	0	0	0	0	0	0	0	0	0	0	0
(0)	DUSK	0	0	0	0	0	0	0	0	0	0	0
	DARK-LIGHTS	0	0	0	0	0	0	0	0	0	0	0
	DARK NO LIGHTS	0	0	0	0	0	0	0	0	0	0	0
	DARK LIGHTS OFF	0	0	0	0	0	0	0	0	0	0	0
	OTHER	0	0	0	0	0	0	0	0	0	0	0
	UNKNOWN	0	0	0	0	0	0	0	0	0	0	0
FOG/SMOG	DAWN	0	0	0	0	0	0	0	0	0	0	0
	DAYLIGHT	0	0	0	0	0	0	0	0	0	0	0
(0)	DUSK	0	0	0	0	0	0	0	0	0	0	0
	DARK-LIGHTS	0	0	0	0	0	0	0	0	0	0	0
	DARK NO LIGHTS	0	0	0	0	0	0	0	0	0	0	0
	DARK LIGHTS OFF	0	0	0	0	0	0	0	0	0	0	0
	OTHER	0	0	0	0	0	0	0	0	0	0	0
	UNKNOWN	0	0	0	0	0	0	0	0	0	0	0

LIGHT	
DAWN	10
DAYLIGHT	262
DUSK	13
DARK-LIGHTS	37
DARK NO LIGHTS	23
DARK LIGHTS OFF	2
OTHER	0
UNKNOWN	0
TOTAL	347

TINACC30

MAINE DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING ACCIDENT RECORDS SECTION

ACCIDENT SUMMARY II - CHARACTERISTICS

WEATHER	LIGHT CONDITION	ROAD SURFACE DRY	WET	SNOW SAND	ICE SAND	MUD	DEBRIS	OIL	SNOW	ICE	OTHER	TOTAL
CROSS WINDS	DAWN	0	0	0	0	0	0	0	0	0	0	0
	DAYLIGHT	0	0	0	0	0	0	0	0	0	0	0
(0)	DUSK	0	0	0	0	0	0	0	0	0	0	0
	DARK-LIGHTS	0	0	0	0	0	0	0	0	0	0	0
	DARK NO LIGHTS	0	0	0	0	0	0	0	0	0	0	0
	DARK LIGHTS OFF	0	0	0	0	0	0	0	0	0	0	0
	OTHER	0	0	0	0	0	0	0	0	0	0	0
	UNKNOWN	0	0	0	0	0	0	0	0	0	0	0
SAND/DUST	DAWN	0	0	0	0	0	0	0	0	0	0	0
	DAYLIGHT	0	0	0	0	0	0	0	0	0	0	0
(0)	DUSK	0	0	0	0	0	0	0	0	0	0	0
	DARK-LIGHTS	0	0	0	0	0	0	0	0	0	0	0
	DARK NO LIGHTS	0	0	0	0	0	0	0	0	0	0	0
	DARK LIGHTS OFF	0	0	0	0	0	0	0	0	0	0	0
	OTHER	0	0	0	0	0	0	0	0	0	0	0
	UNKNOWN	0	0	0	0	0	0	0	0	0	0	0
CLOUDY	DAWN	3	2	0	0	0	0	0	0	0	0	5
	DAYLIGHT	38	8	0	0	0	0	0	0	0	0	46
(68)	DUSK	2	1	0	0	0	0	0	0	0	0	3
	DARK-LIGHTS	7	4	0	1	0	0	0	0	0	0	12
	DARK NO LIGHTS	1	0	0	0	0	0	0	0	0	0	1
	DARK LIGHTS OFF	0	1	0	0	0	0	0	0	0	0	1
	OTHER	0	0	0	0	0	0	0	0	0	0	0
	UNKNOWN	0	0	0	0	0	0	0	0	0	0	0
OTHER	DAWN	0	0	0	0	0	0	0	0	0	0	0
	DAYLIGHT	0	0	0	0	0	0	0	0	0	0	0
(1)	DUSK	0	0	0	0	0	0	0	0	0	0	0
	DARK-LIGHTS	1	0	0	0	0	0	0	0	0	0	1
	DARK NO LIGHTS	0	0	0	0	0	0	0	0	0	0	0
	DARK LIGHTS OFF	0	0	0	0	0	0	0	0	0	0	0
	OTHER	0	0	0	0	0	0	0	0	0	0	0
	UNKNOWN	0	0	0	0	0	0	0	0	0	0	0
ROAD SURFACE TOTALS		261	58	5	8	0	0	0	9	6	0	347

TINACC30

MAINE DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING ACCIDENT RECORDS SECTION

ACCIDENT SUMMARY INPUT

TYPE OF STUDY NODES AND LINKS TYPE OF REQUEST ACCIDENT I & II WITH LINK DETAIL
STUDY PERIOD FROM MONTH 01 YEAR 2003 TO MONTH 12 YEAR 2005

INPUT COMMENTS

REQUEST RT 236
TOWN KITTERY-SOUTH BERWICK

INPUT DATA

ROUTE	COUNTY	FIRST NODE	EXCLUDE FIRST	DISTANCE	SECOND NODE	LAST NODE	EXCLUDE LAST	DISTANCE
0236X	31	10055	0	0 00	01123	07199	0	0 00
0236S		10056	0	0 00	10051	09676	1	0 00
		09676	1	0 00	10073	07174	1	0 00

TINACC30

MAINE DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING, ACCIDENT RECORDS SECTION

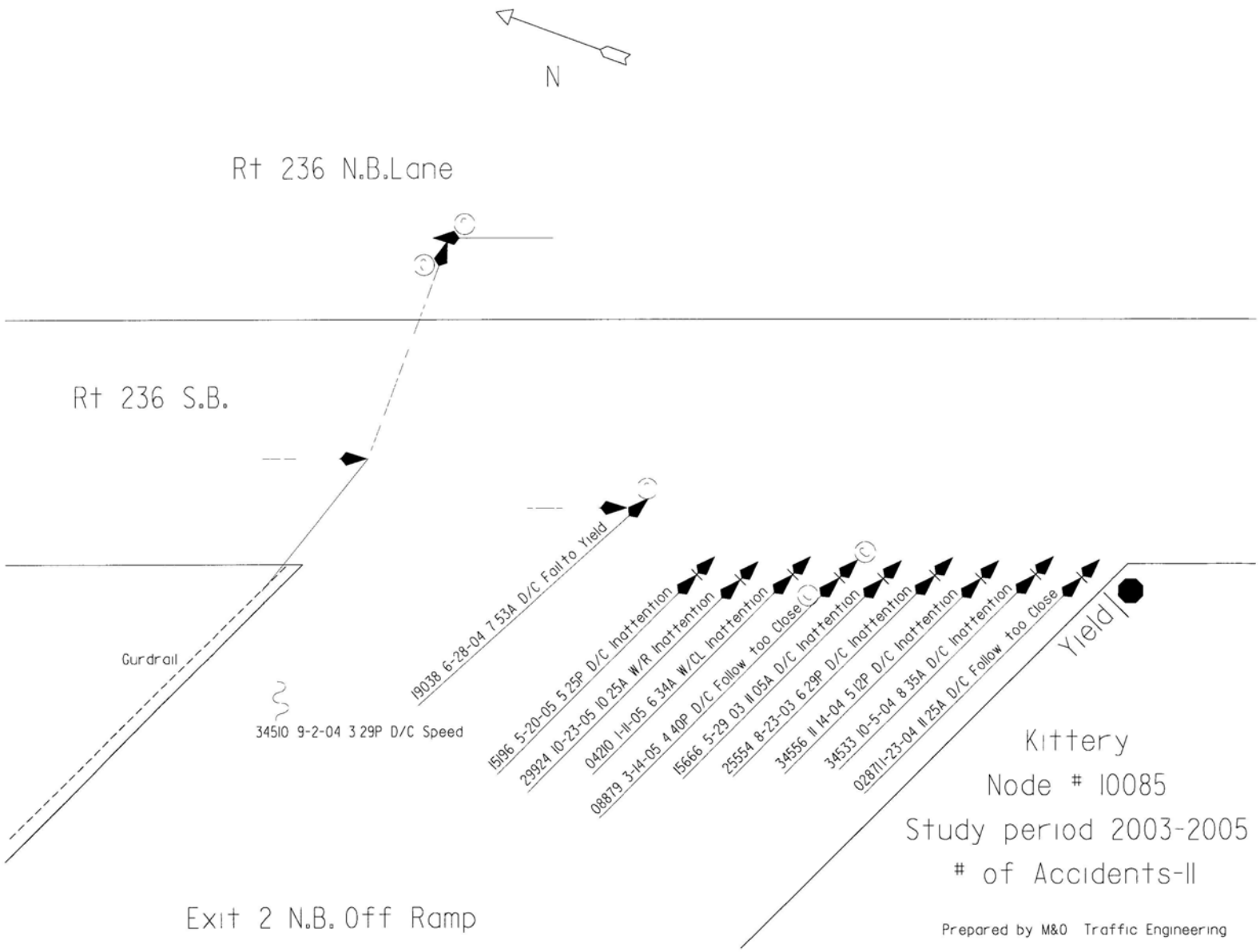
LINK DETAIL

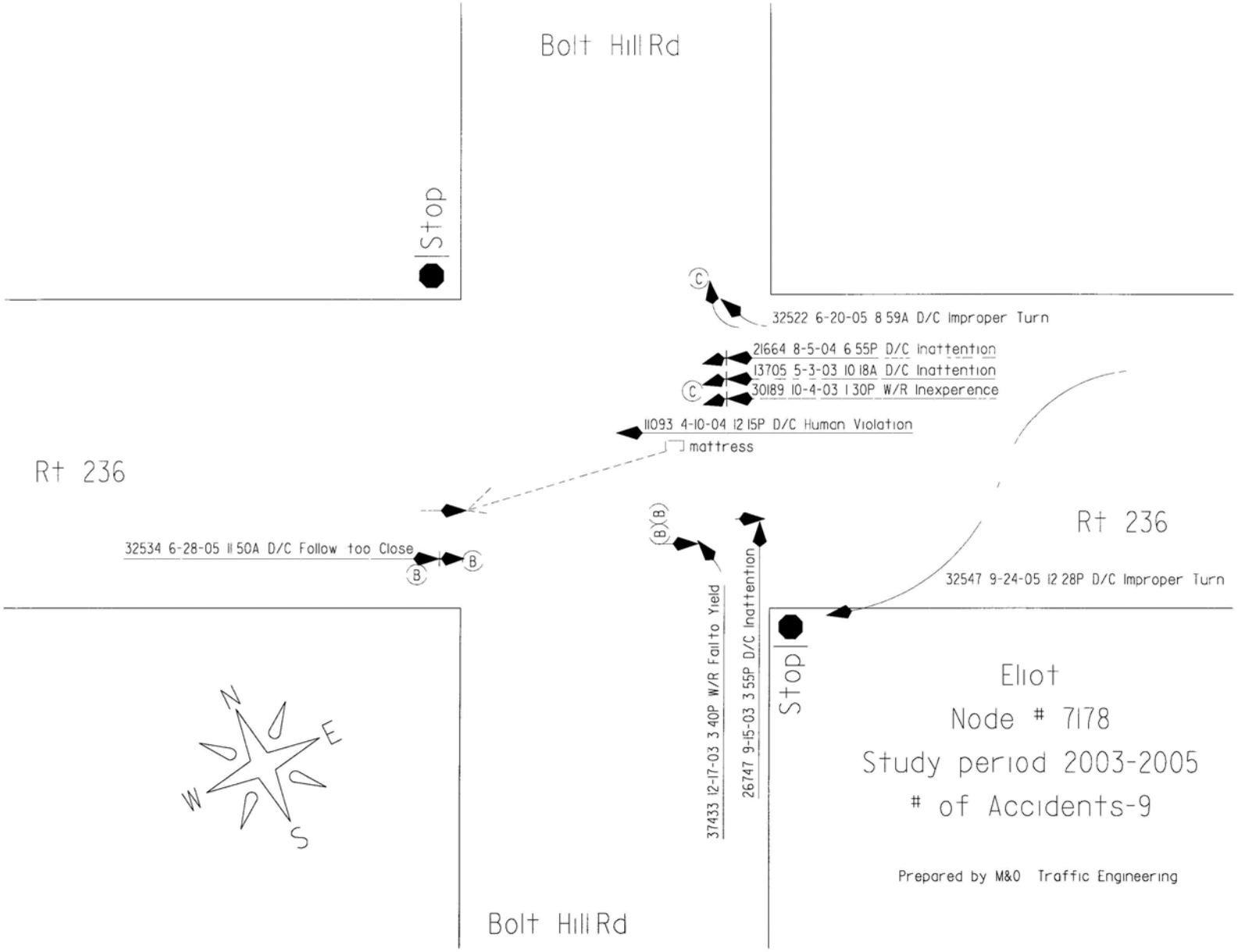
TOWN#	STREET NAME OR ROUTE #	LOW NODE	HIGH NODE	DISTANCE	TOTAL ACCIDENTS	INJURY ACCIDENTS K	A	B	C	PD	ACCIDENT REPORT NUMBERS
31130	ROGERS RD	01123	10055	0 1	1	0	0	0	0	1	200535229
		01122	01123	0 1	1	0	0	0	0	1	200525995
		03702	09676	0 1	2	0	0	0	0	2	200312667 200528496
		09675	09676	0 1	2	0	0	1	1	0	200338492 200340254
		07174	09675	0 1	2	0	0	0	0	2	200434516 200525997
		07174	07175	0 1	1	0	0	0	0	1	200327772
				0 2	1	0	0	1	0	0	200413270
		07175	08611	0 1	1	0	0	1	0	0	200331286
				0 2	2	0	0	0	1	1	200331285 200505155
	FERNALD RD	07176	08611	0 1	2	0	0	1	0	1	200528054 200531408
	ROGERS RD	04112	07177	0 1	1	0	0	0	0	1	200305933
		07177	07178	0 0	1	0	0	0	0	1	200533112
31090	RTE 236			0 1	3	0	0	0	1	2	200318531 200513182 200532553
		07178	07179	0 0	1	0	1	0	0	0	200503292
				0 1	4	0	0	0	0	4	200311373 200330026 200426802 200426804
				0 2	1	0	0	0	0	1	200426803
				0 5	1	0	0	0	0	1	200419528
				0 6	7	0	0	4	0	3	200321907 200335985 200404545 200418187 200418932 200503289 200532520
				0 7	5	0	0	2	1	2	200316753 200419779 200421109 200425086 200532523
				0 8	5	0	0	0	0	5	200310333 200334371 200411092 200429472 200533111
				0 9	1	0	0	0	0	1	200434569
		07179	07180	0 1	6	0	0	0	1	5	200314551 200314711 200421373 200435548 200501438 200503290
				0 2	3	0	0	0	1	2	200532531 200532525 200500928
				0 3	1	0	0	0	0	1	200500817
				0 7	2	0	0	0	0	2	200314489 200421374
		07180	07181	0 1	5	0	0	1	0	4	200339378 200413276 200418934 200512600 200532530
				0 2	4	0	0	1	2	1	200305301 200425081 200514263 200532543
				0 3	2	0	1	0	1	0	200300720 200513181
				0 5	1	0	0	0	1	0	200425080
				0 9	3	0	0	1	0	2	200330032 200429473 200432254
				1 0	3	0	0	0	0	3	200316020 200327803 200512516
				1 1	1	0	0	0	0	1	200436935
		07181	07502	0 1	4	0	0	0	0	4	200324296 200418191 200507922 200516876
				0 2	6	0	0	1	2	3	200328508 200403489 200425363 200438647 200537391 200532541
				0 3	5	0	0	0	1	4	200326746 200334373 200337104 200508702 200532563
				0 6	1	0	0	0	0	1	200400606
		01098	07502	0 1	1	0	0	0	0	1	200335308
				0 2	1	0	0	0	0	1	200339377
				0 3	2	0	0	0	0	2	200338494 200413278
				0 4	1	0	0	0	0	1	200432256
		01098	07182	0 1	1	0	0	0	0	1	200413888
				0 2	2	0	0	0	0	2	200403225 200532526
				0 4	3	0	0	0	0	3	200500625 200507622 200536586

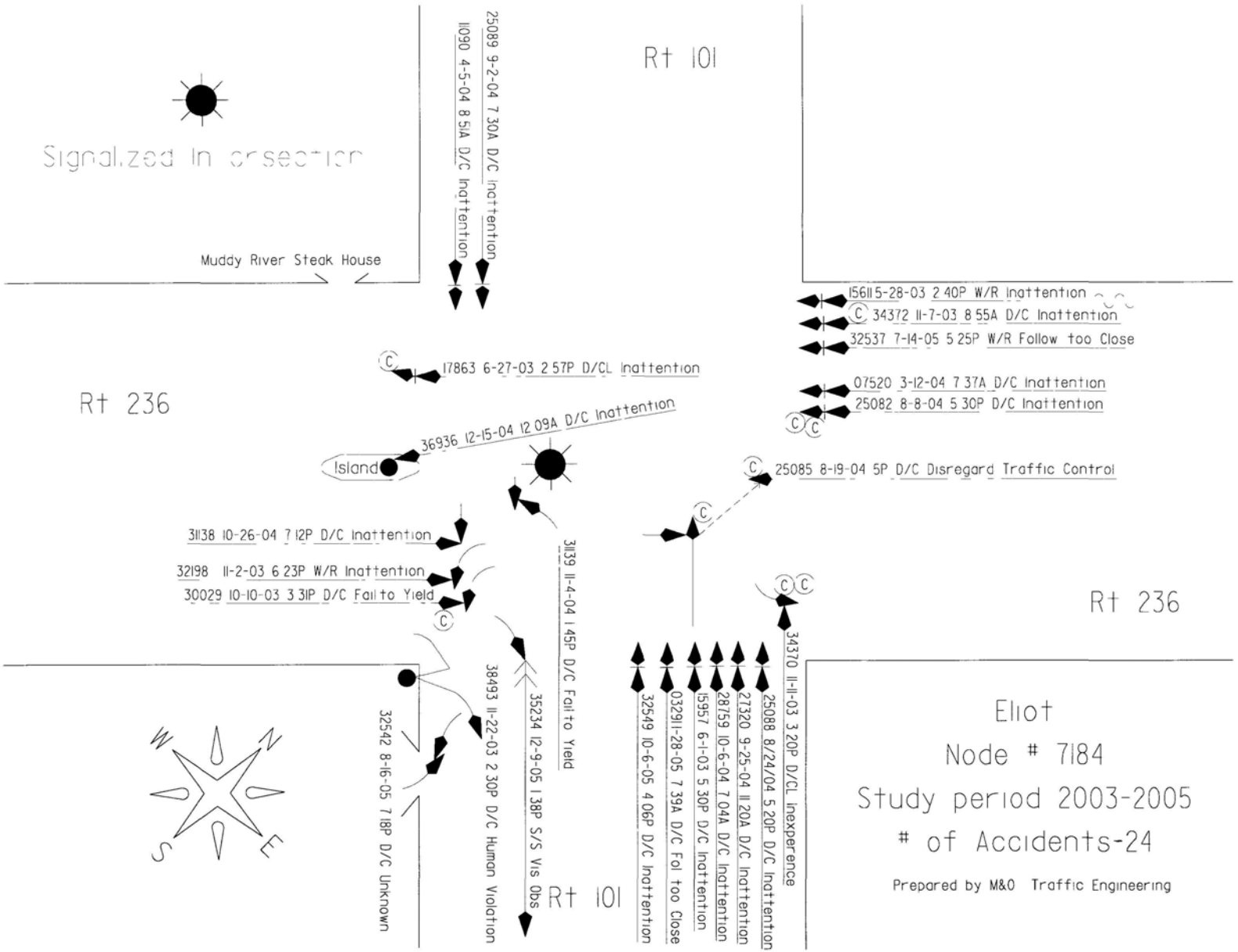
MAINE DEPARTMENT OF TRANSPORTATION
TINACC30 TRAFFIC ENGINEERING ACCIDENT RECORDS SECTION

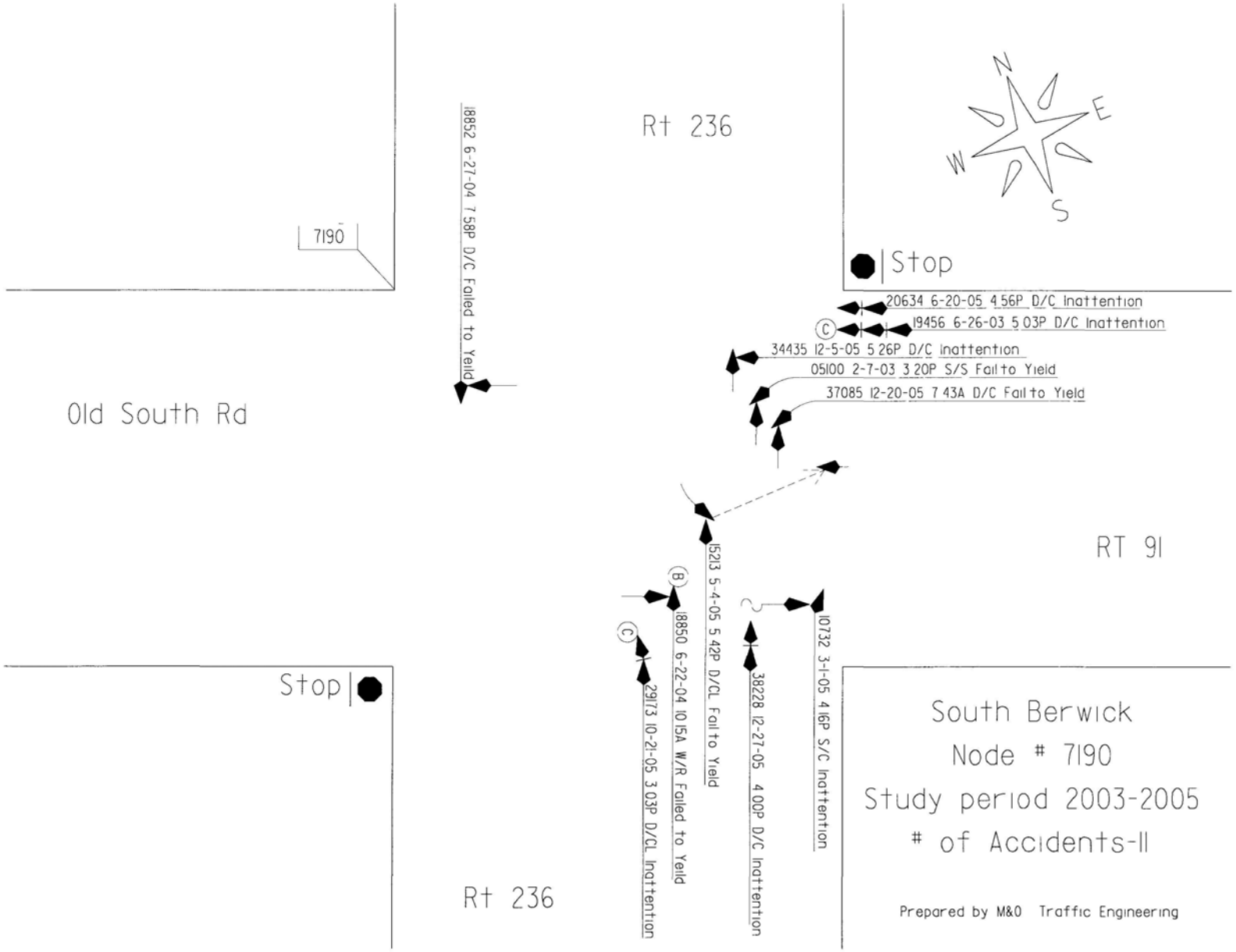
LINK DETAIL

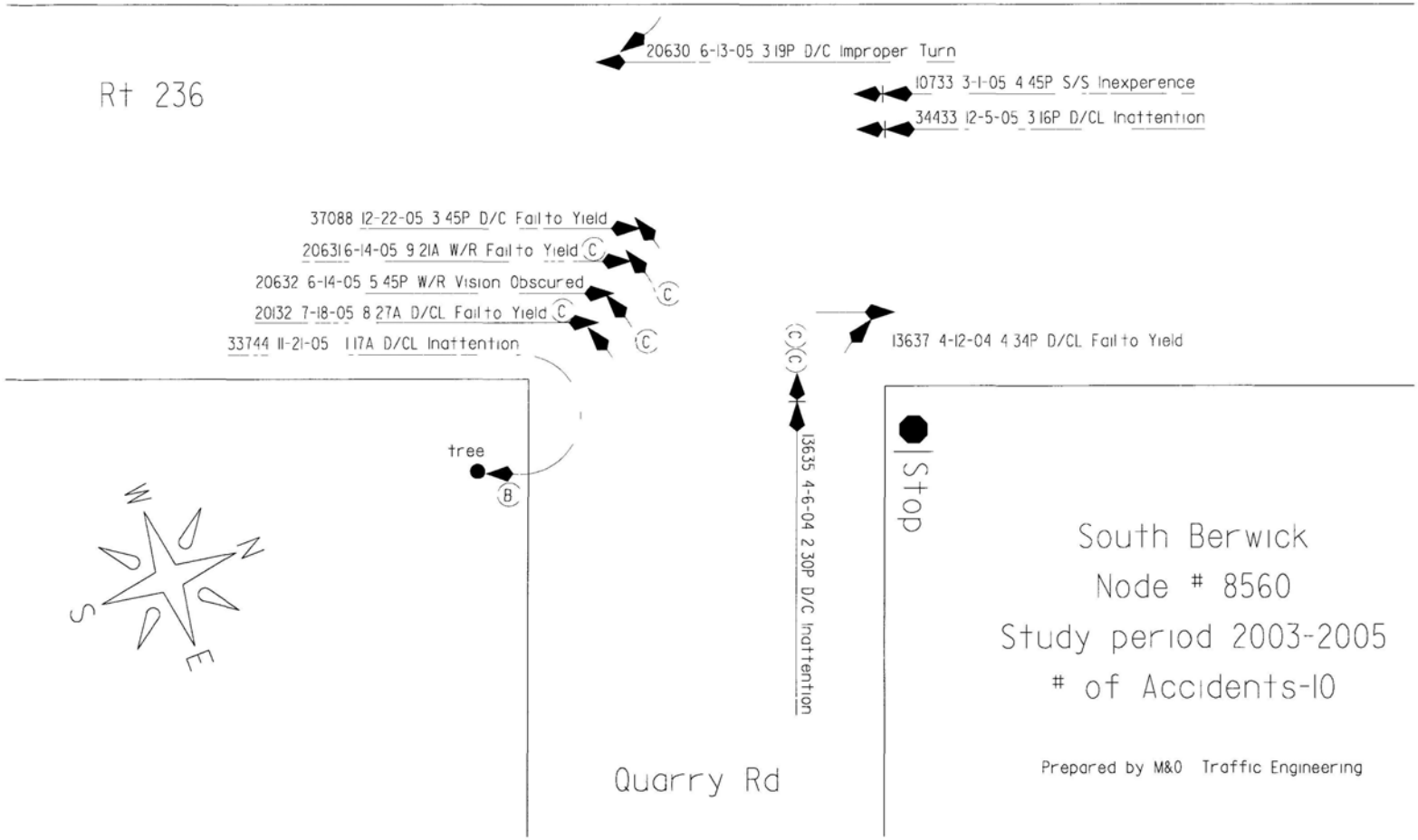
TOWN#	STREET NAME OR ROUTE #	LOW NODE	HIGH NODE	DISTANCE	TOTAL ACCIDENTS	INJURY ACCIDENTS K	A	B	C	PD	ACCIDENT REPORT NUMBERS				
		07182	07183	0 1	3	0	0	1	0	2	200310680	200418188	200503314		
		07183	08434	0 1	1	0	0	0	0	1	200402878				
		07184	08434	0 1	2	0	0	0	0	2	200435552	200511867			
		07184	07185	0 1	4	0	0	0	1	3	200330027	200305579	200418189	200426801	
				0 2	1	0	0	0	0	1	200530252				
				0 3	1	0	0	0	1	0	200315612				
31250	0236X	07185	07186	0 1	3	0	0	2	0	1	200400609	200429184	200532529		
		07186	07187	0 1	2	0	0	0	0	2	200305010	200538226			
				0 2	1	0	0	0	0	1	200506577				
		07187	07188	0 3	3	0	0	0	1	2	200319448	200319449	200328533		
				0 4	1	0	0	0	1	0	200528177				
				0 6	1	0	0	0	0	1	200319457				
		07188	07189	0 0	1	0	0	0	0	1	200521657				
				0 1	2	0	0	0	1	1	200533746	200520636			
				0 4	3	0	0	0	0	3	200506580	200510735	200535300		
				0 6	1	0	0	0	1	0	200301474				
		07189	07190	0 1	2	0	0	0	2	0	200429194	200537082			
		07190	07191	0 1	1	0	0	0	0	1	200533750				
				0 2	1	0	0	0	0	1	200537083				
	ROUTE 236	07191	08560	0 1	4	0	0	0	2	2	200324184	200418853	200429168	200521653	
		01514	07192	0 1	1	0	0	0	0	1	200324181				
		04069	07193	0 1	4	0	0	1	0	3	200429176	200506582	200521660	200528175	
		04069	07194	0 1	4	0	0	2	0	2	200429188	200525186	200524105	200525185	
				0 3	1	0	0	0	0	1	200429186				
		07194	07195	0 1	2	0	0	0	0	2	200332661	200503073			
		07195	07197	0 1	1	0	0	0	0	1	200319452				
				0 2	1	0	0	0	0	1	200503070				
	MAIN ST	07197	07198	0 1	1	0	0	0	0	1	200332664				
		07198	07530	0 1	5	0	0	0	3	2	200328526	200418835	200429191	200515215	200520633
31130	ROGERS RD SB	07199	07530	0 1	2	0	0	1	0	1	200526195	200526197			
		10051	10084	0 1	1	0	0	0	0	1	200434542				
				TOTALS-	164	0	2	21	26	115					

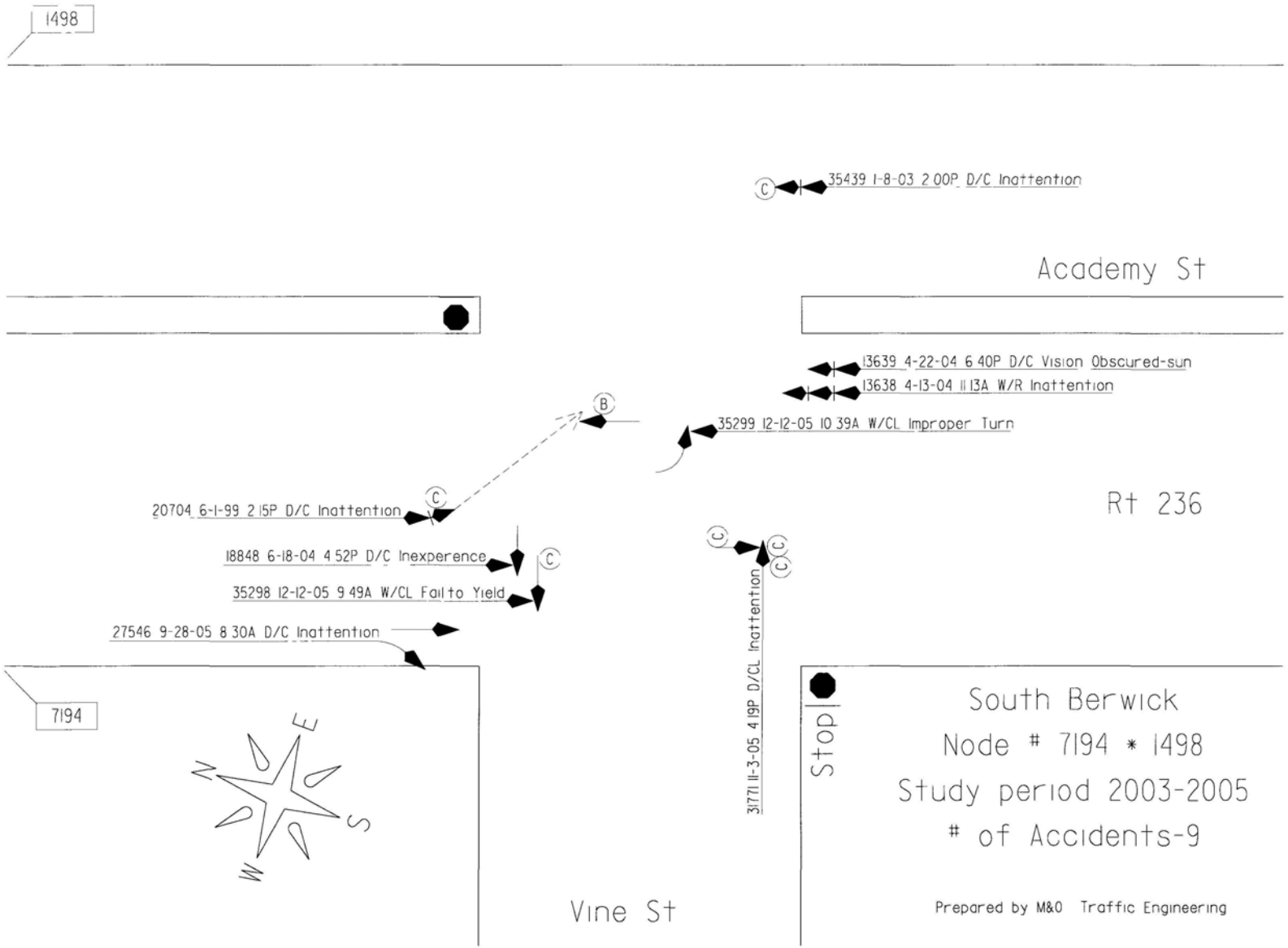

N
Rt 236 N.B.Lane
Rt 236 S.B.
Gurdrail
19038 6-28-04 1 53A D/C Fail to Yield
15196 5-20-05 5 25P D/C Inattention
29924 10-23-05 10 25A W/R Inattention
04210 1-11-05 6 34A W/CL Inattention
08879 3-14-05 4 40P D/C Follow too Close
15666 5-29 03 11 05A D/C Inattention
25554 8-23-03 6 29P D/C Inattention
34556 11 14-04 5 12P D/C Inattention
34533 10-5-04 8 35A D/C Inattention
028711-23-04 11 25A D/C Follow too Close
34510 9-2-04 3 29P D/C Speed
Yield
Kittery
Node # 10085
Study period 2003-2005
# of Accidents-11
Exit 2 N.B. Off Ramp
Prepared by M&O Traffic Engineering

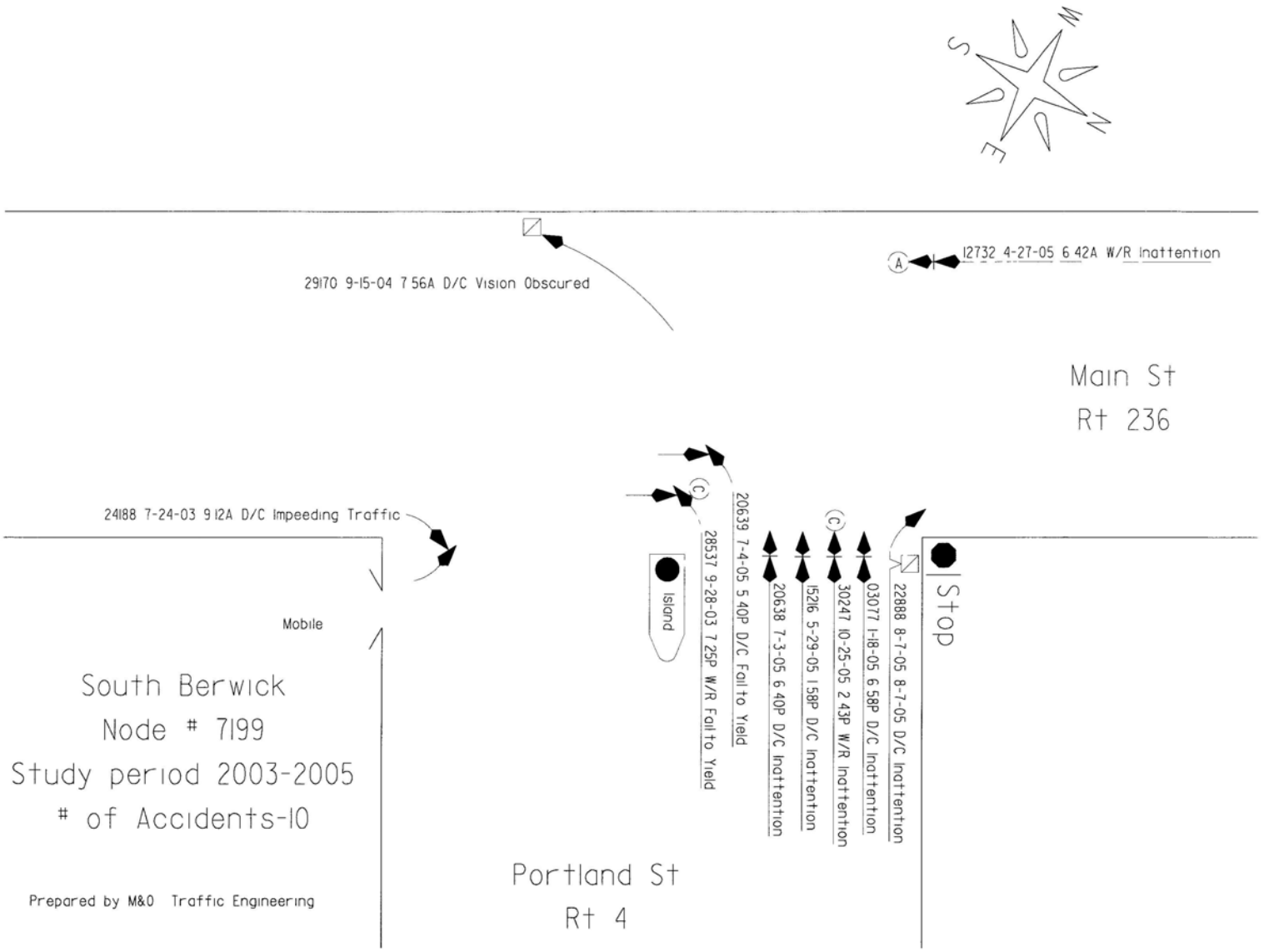

Bolt Hill Rd
Stop
C
32522 6-20-05 8 59A D/C Improper Turn
21664 8-5-04 6 55P D/C Inattention
13705 5-3-03 10 18A D/C Inattention
C
30189 10-4-03 1 30P W/R Inexperence
11093 4-10-04 12 15P D/C Human Violation
mattress
Rt 236
32534 6-28-05 11 50A D/C Follow too Close
B
B
B
B
37433 12-17-03 3 40P W/R Fail to Yield
26747 9-15-03 3 55P D/C Inattention
Rt 236
32547 9-24-05 12 28P D/C Improper Turn
Stop
N
E
W
S
Eliot
Node # 7178
Study period 2003-2005
# of Accidents-9
Prepared by M&O Traffic Engineering
Bolt Hill Rd


Signalized Intersection
Muddy River Steak House
Rt 101
25089 9-2-04 7 30A D/C Inattention
11090 4-5-04 8 5lA D/C Inattention
Rt 236
17863 6-27-03 2 57P D/CL Inattention
36936 12-15-04 12 09A D/C Inattention
Island
31138 10-26-04 7 12P D/C Inattention
32198 11-2-03 6 23P W/R Inattention
30029 10-10-03 3 3lP D/C Fail to Yield
31139 11-4-04 1 45P D/C Fail to Yield
38493 11-22-03 2 30P D/C Human Violation
35234 12-9-05 1 38P S/S Vis Obs
32542 8-16-05 7 18P D/C Unknown
Rt 101
15611 5-28-03 2 40P W/R Inattention
34372 11-7-03 8 55A D/C Inattention
32537 7-14-05 5 25P W/R Follow too Close
07520 3-12-04 7 37A D/C Inattention
25082 8-8-04 5 30P D/C Inattention
25085 8-19-04 5P D/C Disregard Traffic Control
Rt 236
34370 11-11-03 3 20P D/CL Inexperence
25088 8/24/04 5 20P D/C Inattention
27320 9-25-04 11 20A D/C Inattention
28759 10-6-04 7 04A D/C Inattention
15957 6-1-03 5 30P D/C Inattention
03291 1-28-05 7 39A D/C Fol too Close
32549 10-6-05 4 06P D/C Inattention
N
W
E
S
Eliot
Node # 7184
Study period 2003-2005
# of Accidents-24
Prepared by M&O Traffic Engineering


7190
Old South Rd
18852 6-27-04 7 58P D/C Failed to Yeild
Rt 236
N
E
W
S
Stop
20634 6-20-05 4 56P D/C Inattention
C
19456 6-26-03 5 03P D/C Inattention
34435 12-5-05 5 26P D/C Inattention
05100 2-7-03 3 20P S/S Fail to Yield
37085 12-20-05 7 43A D/C Fail to Yield
RT 91
15213 5-4-05 5 42P D/CL Fail to Yield
B
18850 6-22-04 10 15A W/R Failed to Yeild
C
29173 10-21-05 3 03P D/CL Inattention
38228 12-27-05 4 00P D/C Inattention
10732 3-1-05 4 16P S/C Inattention
Stop
Rt 236
South Berwick
Node # 7190
Study period 2003-2005
# of Accidents-11
Prepared by M&O Traffic Engineering


Rt 236
20630 6-13-05 3 19P D/C Improper Turn
10733 3-1-05 4 45P S/S Inexperence
34433 12-5-05 3 16P D/CL Inattention
37088 12-22-05 3 45P D/C Fail to Yield
206316-14-05 9 21A W/R Fail to Yield
20632 6-14-05 5 45P W/R Vision Obscured
20132 7-18-05 8 27A D/CL Fail to Yield
33744 11-21-05 1 17A D/CL Inattention
13637 4-12-04 4 34P D/CL Fail to Yield
13635 4-6-04 2 30P D/C Inattention
tree
Stop
South Berwick
Node # 8560
Study period 2003-2005
# of Accidents-10
Prepared by M&O Traffic Engineering
Quarry Rd


1498
35439 1-8-03 2 00P D/C Inattention
Academy St
13639 4-22-04 6 40P D/C Vision Obscured-sun
13638 4-13-04 11 13A W/R Inattention
35299 12-12-05 10 39A W/CL Improper Turn
Rt 236
20704 6-1-99 2 15P D/C Inattention
18848 6-18-04 4 52P D/C Inexperence
35298 12-12-05 9 49A W/CL Fail to Yield
27546 9-28-05 8 30A D/C Inattention
31771 11-3-05 4 19P D/CL Inattention
7194
Stop
South Berwick
Node # 7194 * 1498
Study period 2003-2005
# of Accidents-9
Prepared by M&O Traffic Engineering
Vine St


W
S
E
N
29170 9-15-04 7 56A D/C Vision Obscured
A
12732 4-27-05 6 42A W/R Inattention
Main St
Rt 236
24188 7-24-03 9 12A D/C Impeeding Traffic
C
20639 7-4-05 5 40P D/C Fail to Yield
28537 9-28-03 7 25P W/R Fail to Yield
Island
C
20638 7-3-05 6 40P D/C Inattention
15216 5-29-05 1 58P D/C Inattention
30247 10-25-05 2 43P W/R Inattention
03077 1-18-05 6 58P D/C Inattention
22888 8-7-05 8-7-05 D/C Inattention
Stop
Mobile
South Berwick
Node # 7199
Study period 2003-2005
# of Accidents-10
Prepared by M&O Traffic Engineering
Portland St
Rt 4

Route 236 Northbound

Point	Town	Trip Descriptions and Junctions Noted	Run 1 1:08 PM	Run 2 1:50 PM	Run 3 2:43 PM	Run 4 3:28 PM	Run 5 4:09 PM	Run 6 4:56 PM	Run 7 5:43 PM	Run 8 6:18 AM	Run 9 6:55 AM	Run 10 7:43 AM	Run 11 8:34 AM	Run 12 9:27 AM	Run 13 10:04 AM	Run 14 10:39 AM	Run 15 12:02 PM	Run 16 12:40 PM	Run 17 1:23 PM	Run 18 2:03 PM	Run 19 2:42 PM	Run 20 3:27 PM	Run 21 4:08 PM	Run 22 4:52 PM	Run 23 5:34 PM	Run 24 6:22 AM	Run 25 7:00 AM	Run 26 7:43 AM	Run 27 8:34 AM	Run 28 9:37 AM	Run 29 10:12 AM	Run 30 10:56 AM	Run 31 11:37 AM	ATS (mph)
A	Kittery	Kittery Circle																																	
B	Kittery	NB Off-Ramp Cross Over	34.94	34.94	37.13	34.94	34.94	37.13	37.13	34.94	33.00	29.70	34.94	34.94	34.94	34.94	34.94	29.70	33.00	33.00	29.70	33.00	31.26	34.94	33.00	33.00	33.00	34.94	31.26	37.13	33.00	33.00	33.00	33.00	**33.8**
C	Kittery	SB Off-Ramp Cross Over	57.86	42.63	47.65	42.63	45.00	47.65	42.63	45.00	42.63	45.00	38.57	42.63	40.50	40.50	42.63	40.50	40.50	40.50	42.63	40.50	40.50	45.00	40.50	40.50	38.57	42.63	42.63	45.00	40.50	40.50	38.57	**42.4**
D	Kittery	Dana Rd (End of Island&4-lan)	45.00	48.00	51.43	42.35	40.00	48.00	48.00	48.00	48.00	48.00	45.00	48.00	51.43	45.00	48.00	45.00	42.35	45.00	48.00	48.00	40.00	48.00	45.00	40.00	42.35	45.00	45.00	45.00	42.35	40.00	45.00	**45.3**
E	Kittery	Martin Road	32.23	46.20	37.46	21.66	17.54	15.75	47.79	49.50	44.71	47.79	44.71	47.79	47.79	28.29	33.80	43.31	43.31	39.60	46.20	46.20	25.20	42.00	44.71	40.76	44.71	26.65	46.20	35.54	42.00	33.00	28.29	**35.1**
F	Kittery	MacKenzie Lane	40.65	50.40	40.65	32.31	39.38	38.18	50.40	46.67	48.46	46.67	48.46	42.00	48.46	39.38	38.18	40.65	46.67	45.00	42.00	46.67	42.00	46.67	34.05	45.00	46.67	37.06	46.67	36.00	46.67	39.38	40.65	**42.4**
G	Eliot	Bolt Hill Road	52.43	50.25	46.38	44.67	46.38	50.25	54.82	44.67	50.25	44.67	44.67	44.67	48.24	52.43	40.20	46.38	48.24	43.07	46.38	44.67	40.20	46.38	46.38	46.38	44.67	36.55	44.67	44.67	50.25	48.24	44.67	**46.0**
H	Eliot	Drive For Boat Buisness (end 2-lanes NB)	53.03	50.31	45.63	51.63	40.04	51.63	45.63	46.71	50.31	46.71	44.59	44.59	51.63	53.03	41.74	47.85	44.59	46.71	47.85	44.59	42.65	45.63	47.85	50.31	46.71	37.02	42.65	44.59	44.59	50.31	45.63	**46.4**
I	Eliot	Beech Road	35.05	28.34	40.36	33.30	21.48	44.40	26.12	42.97	41.62	28.96	36.00	40.36	31.71	45.93	18.76	28.96	36.00	20.18	42.97	35.05	19.59	26.12	26.64	30.27	36.00	36.00	22.58	27.75	38.06	32.49	33.30	**30.6**
J	Eliot	Passamaquoddy (Begin 2-lanes NB)	37.03	35.35	38.88	38.88	35.35	43.20	40.93	38.88	43.20	33.81	37.03	40.93	35.35	45.74	35.35	37.03	43.20	31.10	45.74	37.03	37.03	37.03	32.40	37.03	38.88	43.20	35.35	37.03	38.88	37.03	38.88	**38.0**
K	Eliot	35/45 MPH Zone Change	51.84	45.74	48.60	38.88	38.88	59.82	48.60	55.54	45.74	51.84	38.88	48.60	45.74	59.82	48.60	33.81	48.60	45.74	48.60	38.88	40.93	43.20	37.03	45.74	45.74	43.20	45.74	51.84	40.93	51.84	48.60	**45.6**
L	Eliot	BradStreet(-End of G Rail)	46.67	46.67	43.56	46.67	46.67	43.56	50.26	48.40	48.40	46.67	46.67	46.67	43.56	50.26	48.40	45.06	50.26	50.26	31.11	24.66	26.14	28.41	22.93	30.39	28.41	29.04	29.70	31.11	39.60	43.56	50.26	**38.3**
M	Eliot	NB School Zone Limit Lights	45.98	47.11	45.98	51.57	17.27	50.21	50.21	51.57	47.11	47.70	47.70	47.70	43.86	53.75	53.75	39.34	53.00	51.57	54.51	44.89	19.08	47.11	42.40	51.57	38.94	48.92	48.30	53.75	42.88	54.51	47.70	**43.4**
N	Eliot	Depot Road	43.71	40.80	40.80	13.91	32.21	40.80	40.80	26.61	11.33	25.50	43.71	38.25	38.25	51.00	26.61	26.61	47.08	15.30	47.08	11.77	17.00	36.00	27.82	43.71	13.02	18.00	36.00	51.00	47.08	47.08	43.71	**27.1**
O	Eliot	SB School Zone Limit Lights	57.00	42.75	42.75	34.20	34.20	42.75	42.75	26.31	26.31	28.50	42.75	42.75	42.75	48.86	28.50	31.09	48.86	21.37	48.86	28.50	28.50	42.75	38.00	48.86	21.37	28.50	31.09	42.75	42.75	42.75	38.00	**35.3**
P	Eliot	Ambush Rock Lane	49.66	45.71	50.53	51.43	42.35	53.33	51.43	54.34	19.59	25.26	52.36	50.53	53.33	53.33	53.33	42.35	56.47	51.43	55.38	51.43	47.21	49.66	40.56	50.53	45.71	24.00	48.81	54.34	55.38	49.66	54.34	**44.9**
Q	Eliot	Route 103	45.00	43.85	43.85	46.22	40.71	46.22	47.50	46.22	38.86	31.67	47.50	42.75	50.29	40.71	47.50	43.85	48.86	50.29	48.86	41.71	46.22	45.00	36.38	42.75	42.75	27.14	45.00	46.22	47.50	45.00	48.86	**43.3**
R	Eliot	Heron Cove Road	41.04	51.30	44.61	44.61	38.00	42.75	46.64	48.86	42.75	38.00	44.61	44.61	48.86	48.46	48.86	44.61	51.30	46.64	51.30	38.00	44.61	42.75	35.38	39.46	41.04	31.09	44.86	48.86	48.86	46.64	51.30	**43.7**
S	Eliot	Route 101	27.00	36.00	43.20	39.27	16.62	30.86	43.20	18.78	16.00	39.27	18.00	20.57	48.00	39.27	48.00	39.27	48.00	43.20	48.00	33.23	20.57	27.00	12.71	18.78	9.19	39.27	48.00	48.00	28.80	18.78	43.20	**26.6**
T	Eliot	End of SB G Rail (x sign)	33.75	38.57	49.09	45.00	33.75	33.75	45.00	33.75	30.00	38.57	31.76	33.75	45.00	33.75	38.57	45.00	38.57	36.00	38.57	36.00	33.75	36.00	36.00	30.00	28.42	31.76	41.54	41.54	33.75	30.00	38.57	**36.1**
U	Eliot	45/55 mph Sign (Grails/oTL)	45.28	53.78	50.61	50.61	47.80	50.61	53.78	47.80	43.02	47.80	50.61	47.80	50.61	47.80	50.61	47.80	53.78	50.61	47.80	45.28	45.28	47.80	50.61	47.80	47.80	45.28	50.61	50.61	50.61	40.97	50.61	**48.6**
V	S. Berwick	Lord's Road	53.42	58.07	55.65	47.70	51.37	53.42	49.47	55.65	47.70	58.07	56.83	49.47	58.07	54.51	55.65	49.47	56.83	55.65	49.47	51.37	50.40	48.57	50.40	53.42	49.47	47.70	48.57	55.65	50.40	47.70	54.51	**52.2**
W	S. Berwick	NB 15 School Zone Speed	51.08	52.50	51.08	49.74	55.59	55.59	52.50	55.59	45.00	57.27	57.27	49.74	59.06	55.59	57.27	49.74	51.08	49.74	54.00	46.10	54.00	52.50	51.08	54.00	42.95	45.00	48.46	54.00	52.50	52.50	52.50	**51.8**
X	S. Berwick	SB 15 School Zone Speed	47.06	21.25	47.06	50.68	54.90	47.06	43.92	54.90	20.59	50.68	54.90	47.06	50.68	43.92	50.68	50.68	43.92	18.30	47.06	47.06	50.68	50.68	47.06	50.68	16.89	41.18	47.06	50.68	38.75	47.06	43.92	**40.0**
Y	S. Berwick	55/45 mph Speed Zone	49.75	49.75	51.06	55.44	57.07	55.44	53.90	53.90	45.13	55.44	58.80	49.75	57.07	55.44	57.07	52.44	49.75	51.06	55.44	53.90	55.44	55.44	47.33	53.90	44.10	45.13	51.06	53.90	45.13	53.90	51.06	**52.1**
Z	S. Berwick	Route 91	45.60	54.72	49.75	52.11	54.72	47.58	45.60	52.11	49.75	45.60	54.72	47.58	52.11	49.75	49.75	52.11	45.60	52.11	49.75	47.58	47.58	49.75	42.09	47.58	49.75	42.09	40.53	47.58	43.78	45.60	52.11	**48.3**
AA	S. Berwick	Quarry Drive	47.61	49.20	46.13	46.13	42.17	46.13	46.13	50.90	47.61	43.41	50.90	42.17	50.90	49.20	49.20	43.41	43.41	50.90	44.73	44.73	46.13	46.13	41.00	46.13	47.61	44.73	41.00	50.90	47.61	50.90	49.20	**46.5**
BB	S. Berwick	Brattle St (Vaughan Woods)	45.32	48.15	45.32	48.15	42.80	45.32	48.15	48.15	48.15	38.52	45.32	38.52	45.32	45.32	48.15	40.55	40.55	42.80	40.55	42.80	45.32	42.80	42.80	42.80	42.80	40.55	40.55	45.32	42.80	45.32	51.36	**44.0**
CC	S. Berwick	Vine St. (school area)	45.94	50.31	46.96	46.96	49.14	46.96	46.96	45.94	50.31	43.13	49.14	49.14	49.14	48.03	46.96	44.03	43.13	44.03	44.03	43.13	45.94	46.96	38.42	44.96	39.13	42.26	40.64	45.94	45.94	46.96	46.96	**45.5**
DD	S. Berwick	45/25 mph Speed Zone	42.80	55.03	44.45	36.11	50.24	37.28	44.45	44.45	48.15	46.22	50.24	48.15	48.15	48.15	48.15	46.22	41.27	46.22	44.45	44.45	37.28	46.22	39.85	44.45	48.15	44.45	42.80	48.15	44.45	46.22	48.15	**44.9**
EE	S. Berwick	Route 4	12.71	27.16	6.87	12.45	3.15	4.94	5.53	23.90	21.34	11.07	21.34	18.68	19.92	28.46	23.90	21.34	16.15	22.13	3.32	10.13	4.30	11.95	14.94	28.46	24.90	22.13	17.58	23.90	21.34	19.92	22.13	**11.3**
FF	S. Berwick	Academy St	23.40	23.40	10.80	23.40	56.16	25.53	25.53	23.40	25.53	21.60	23.40	28.08	23.40	25.53	20.06	23.40	25.53	25.53	23.40	12.76	11.23	23.40	23.40	21.60	25.53	18.72	25.53	25.53	23.40	16.52	28.08	**21.7**
GG	S. Berwick	Route4/Portland St	21.60	24.00	11.08	20.57	22.74	24.00	24.00	22.74	20.57	19.64	20.57	22.74	24.00	22.74	16.62	19.64	19.64	20.57	13.50	11.37	13.94	20.57	21.60	20.57	21.60	17.28	22.74	20.57	19.64	10.80	21.60	**18.8**
HH	S. Berwick	Route4/Highland Ave	25.32	26.23	23.69	27.20	17.08	25.32	26.23	29.38	26.23	25.32	26.23	25.32	26.23	25.32	23.69	24.48	24.48	23.69	20.98	23.69	23.69	22.95	22.25	25.32	26.23	21.60	22.25	25.32	22.95	20.98	24.48	**24.1**
II	S. Berwick	Route4 / Agamenticus	33.20	31.45	31.45	31.45	22.98	29.88	35.15	35.15	33.20	29.88	33.20	33.20	29.88	31.45	29.88	31.45	31.45	29.88	28.46	31.45	29.88	33.20	29.88	31.45	31.45	25.98	29.88	29.88	31.45	28.46	28.46	**30.6**

Route 236 Southbound

Point	Town	Trip Descriptions and Junctions Noted	Run 1 12:48 PM	Run 2 1:31 PM	Run 3 2:09 PM	Run 4 3:10 PM	Run 5 3:53 PM	Run 6 4:39 PM	Run 7 5:20 PM	Run 8 6:01 AM	Run 9 6:36 AM	Run 10 7:20 AM	Run 11 8:06 AM	Run 12 8:54 AM	Run 13 9:47 AM	Run 14 10:22 AM	Run 15 11:44 AM	Run 16 12:23 PM	Run 17 1:02 PM	Run 18 1:44 PM	Run 19 2:24 PM	Run 20 3:06 PM	Run 21 3:51 PM	Run 22 4:34 PM	Run 23 5:13 PM	Run 24 6:42 AM	Run 25 7:24 AM	Run 26 8:15 AM	Run 27 8:58 AM	Run 28 9:55 AM	Run 29 10:39 AM	Run 30 11:16 AM	Run 31 11:53 AM	ATS (mph)
II	S. Berwick	Route4 / Agamenticus																																
HH	S. Berwick	Route4/Highland Ave	37.35	33.20	28.46	31.45	31.45	29.88	31.45	33.20	31.45	27.16	27.16	31.45	29.88	31.45	27.16	29.88	29.88	31.45	29.88	22.98	31.45	31.45	25.98	24.90	29.88	23.90	25.98	29.88	29.88	29.88	31.45	**29.3**
GG	S. Berwick	Route4/Portland St	22.95	6.02	3.99	5.03	13.11	22.25	1.58	7.90	4.42	13.11	2.49	13.11	10.06	17.91	11.48	17.08	21.60	6.12	17.91	3.85	24.48	10.64	3.71	17.08	14.69	8.96	6.39	19.33	19.33	9.30	12.66	**8.3**
FF	S. Berwick	Academy St	21.60	20.57	20.57	16.00	18.78	20.57	20.57	24.00	18.00	17.28	8.31	18.78	19.64	21.60	18.78	19.64	19.64	19.64	19.64	5.92	18.78	20.57	17.28	18.00	18.78	6.17	17.28	20.57	20.57	16.62	20.57	**16.3**
EE	S. Berwick	Route 4	23.40	25.53	23.40	17.55	14.78	17.55	20.06	23.40	21.60	10.40	14.78	23.40	21.60	23.40	12.21	12.76	14.78	15.60	21.60	9.36	20.06	11.70	7.20	18.72	12.21	11.23	21.60	23.40	23.40	23.40	18.72	**16.0**
DD	S. Berwick	25/45 mph Speed Zone	33.20	33.20	31.45	29.88	29.88	29.88	29.88	35.15	33.20	31.45	28.46	29.88	33.20	31.45	29.88	27.16	29.88	29.88	28.46	27.16	31.45	28.46	35.15	29.88	29.88	29.88	37.35	33.20	33.20	31.45	29.88	**30.8**
CC	S. Berwick	Vine St. (school area)	42.80	42.80	42.80	37.28	41.27	38.52	44.45	46.22	46.22	44.45	41.27	41.27	44.45	41.27	46.22	42.80	41.27	46.22	42.80	41.27	38.52	44.45	42.80	44.45	42.80	39.85	44.45	44.45	44.45	42.80	44.45	**42.5**
BB	S. Berwick	Brattle St (Vaughan Woods)	44.96	51.54	49.14	43.13	45.94	44.03	49.14	52.83	49.14	45.94	46.96	49.14	44.96	49.14	46.96	45.94	34.08	49.14	45.94	46.96	46.96	48.03	44.96	45.94	46.96	44.96	49.14	45.94	45.94	50.31	42.26	**46.3**
AA	S. Berwick	Quarry Drive	42.80	48.15	48.15	48.15	51.36	42.80	51.36	51.36	45.32	42.80	45.32	48.15	42.80	48.15	42.80	45.32	42.80	48.15	45.32	51.36	48.15	48.15	48.15	48.15	45.32	48.15	48.15	45.32	45.32	45.32	45.32	**46.5**
Z	S. Berwick	Route 91	46.13	52.71	42.17	50.90	52.71	46.13	49.20	44.73	49.20	44.73	47.61	52.71	47.61	49.20	44.73	49.20	50.90	50.90	47.61	43.41	46.13	49.20	50.90	46.13	47.61	46.13	50.90	44.73	44.73	42.17	43.41	**51.1**
Y	S. Berwick	45/55 mph Speed Zone	45.60	47.58	42.09	43.78	52.11	47.58	45.60	49.75	45.60	43.78	47.58	52.11	45.60	45.60	45.60	49.75	49.75	47.58	47.58	36.48	45.60	52.11	49.75	45.60	49.75	47.58	52.11	47.58	47.58	47.58	45.60	**47.0**
X	S. Berwick	SB 15 School Zone Speed	48.51	52.44	46.20	49.75	57.07	47.33	58.80	53.90	53.90	45.13	53.90	55.44	55.44	52.44	57.07	55.44	53.90	57.07	41.29	48.51	53.90	55.44	53.90	43.12	48.51	57.07	51.06	57.07	57.07	57.07	55.44	**51.9**
W	S. Berwick	NB 15 School Zone Speed	59.89	54.90	22.72	59.89	47.06	50.68	59.89	54.90	54.90	14.97	50.68	54.90	54.90	54.90	59.89	54.90	54.90	54.90	16.47	50.68	54.90	50.68	47.06	43.92	16.89	54.90	50.68	54.90	54.90	59.89	54.90	**42.1**
V	S. Berwick	Lord's Road	54.00	55.59	34.36	59.06	55.59	51.08	60.97	55.59	57.27	43.95	55.59	60.97	59.06	55.59	60.97	60.97	57.27	54.00	49.74	49.74	51.08	54.00	54.00	47.25	47.25	55.59	54.00	60.97	60.97	59.06	59.06	**53.6**
U	Eliot	55/45 mph Sign (Grails/oTL)	48.57	50.40	31.06	59.36	58.07	51.37	59.36	56.83	52.38	45.27	55.65	59.36	55.65	50.40	59.36	56.83	55.65	49.47	47.70	52.38	49.47	58.07	54.51	44.52	53.42	48.57	50.40	58.07	58.07	56.83	55.65	**51.9**
T	Eliot	End of SB G Rail (x sign)	30.73	45.28	39.11	61.46	53.78	53.78	61.46	47.80	47.80	35.85	45.28	57.36	53.78	45.28	53.78	47.80	57.36	43.02	47.80	53.78	47.80	53.78	50.61	47.80	50.61	45.28	50.61	57.36	57.36	53.78	57.36	**48.9**
S	Eliot	Route 101	10.19	22.50	38.57	14.59	41.54	15.88	20.00	16.36	33.75	8.18	11.74	25.71	45.00	33.75	8.85	28.42	36.00	36.00	15.88	45.00	8.31	10.19	7.83	24.55	10.19	33.75	17.42	13.17	13.17	30.00	20.77	**16.6**
R	Eliot	Heron Cove Road	21.60	33.23	39.27	39.27	30.86	28.80	33.23	30.86	33.23	36.00	36.00	25.41	48.00	28.80	33.23	39.27	36.00	43.20	33.23	39.27	33.23	33.23	33.23	28.80	30.86	36.00	36.00	30.86	30.86	36.00	28.80	**32.8**
Q	Eliot	Route 103	34.20	46.64	39.46	42.75	41.04	51.30	51.30	41.04	44.61	42.75	44.61	38.00	46.64	32.06	46.64	41.04	46.64	44.61	44.61	42.75	46.64	34.20	39.46	39.46	42.75	41.04	44.61	48.86	48.86	44.61	46.64	**42.7**
P	Eliot	Ambush Rock Lane	40.71	45.00	42.75	47.50	46.22	51.82	48.86	46.22	43.85	42.75	43.85	45.00	46.22	36.38	47.50	50.29	50.29	34.90	47.50	47.50	47.50	43.85	47.50	40.71	43.85	41.71	47.50	51.82	51.82	42.75	47.50	**45.2**
O	Eliot	SB School Zone Limit Lights	50.53	47.21	26.92	58.78	51.43	56.47	60.00	53.33	46.45	15.24	48.00	48.81	52.36	45.71	50.53	54.34	57.60	47.21	48.00	48.81	51.43	49.66	54.34	45.71	52.36	46.45	47.21	56.47	56.47	46.45	50.53	**45.9**
N	Eliot	Depot Road	16.29	42.75	20.12	48.86	42.75	48.86	48.86	42.75	38.00	7.28	42.75	15.55	19.00	34.20	42.75	13.15	48.86	31.09	24.43	42.75	42.75	34.20	9.24	18.00	19.00	8.77	42.75	42.75	42.75	12.67	7.95	**21.4**
M	Eliot	NB School Zone Limit Lights	38.25	51.00	27.82	47.08	38.25	43.71	51.00	47.08	38.25	29.14	43.71	29.14	36.00	36.00	47.08	36.00	51.00	36.00	19.74	43.71	43.71	43.71	36.00	32.21	36.00	36.00	43.71	40.80	40.80	38.25	38.25	**37.6**
L	Eliot	BradStreet(-End of G Rail)	51.57	55.30	53.75	47.11	48.30	45.43	50.21	52.27	44.89	43.86	50.88	45.98	47.11	41.48	50.21	42.40	56.12	47.11	48.92	51.57	45.43	42.88	48.92	43.86	47.70	50.88	49.56	45.98	45.98	47.11	50.21	**47.7**
K		45/35 MPH Zone Change	48.40	52.27	52.27	46.67	45.06	45.06	48.40	50.26	46.67	43.56	45.06	48.40	43.56	42.15	48.40	42.15	45.06	46.67	52.27	46.67	43.56	43.56	50.26	43.56	46.67	48.40	50.26	48.40	48.40	43.56	48.40	**46.6**
J	Eliot	Passamaquoddy (Begin 2-lanes NB)	37.03	48.60	48.60	48.60	40.93	40.93	45.74	45.74	45.74	37.03	40.93	45.74	38.88	43.20	48.60	45.74	37.03	45.74	45.74	37.03	45.74	40.93	51.84	48.60	45.74	45.74	38.88	45.74	45.74	40.93	45.74	**43.4**
I	Eliot	Beech Road	31.10	23.56	40.93	24.30	38.88	20.46	14.95	26.81	43.20	35.35	43.20	45.74	32.40	35.35	14.40	25.08	18.08	18.08	19.44	18.08	28.80	25.08	23.56	43.20	26.81	17.67	38.88	45.74	45.74	37.03	40.93	**27.2**
H	Eliot	Drive For Boat Buisness (end 2-lanes NB)	33.30	39.18	41.62	39.18	36.00	38.06	34.15	38.06	42.97	35.05	44.40	44.40	38.06	40.36	39.18	38.06	37.00	36.00	38.06	37.00	29.60	36.00	38.06	37.00	36.00	37.00	37.00	44.40	44.40	39.18	44.40	**38.3**
G	Eliot	Bolt Hill Road	42.65	53.03	44.59	49.05	40.88	40.04	41.74	47.85	49.05	43.60	47.85	50.31	45.63	51.63	46.71	41.74	47.85	44.59	50.31	49.05	42.65	43.60	47.85	40.88	39.24	47.85	49.05	46.71	46.71	42.65	53.03	**45.7**
F	Kittery	MacKenzie Lane	40.20	52.43	46.38	54.82	43.07	44.67	40.20	48.24	46.38	44.67	44.67	54.82	46.38	52.43	52.43	43.07	50.25	50.25	48.24	50.25	48.24	46.38	48.24	43.07	48.24	50.25	50.25	43.07	43.07	46.38	52.43	**47.4**
E	Kittery	Martin Road	38.18	50.40	34.05	52.50	42.00	38.18	40.65	45.00	33.16	26.81	34.05	46.67	40.65	50.40	39.38	35.00	46.67	45.00	45.00	50.40	46.67	23.33	43.45	43.45	27.39	46.67	48.46	29.30	29.30	42.00	34.05	**38.5**
D	Kittery	Dana Rd (End of Island&4-lan)	42.00	44.71	38.50	40.76	39.60	42.00	42.00	44.71	42.00	33.80	40.76	43.31	39.60	47.79	39.60	42.00	46.20	44.71	43.31	44.71	47.79	34.65	43.31	42.00	38.50	44.71	46.20	37.46	37.46	42.00	38.50	**41.5**
C	Kittery	SB Off-Ramp Cross Over	45.00	48.00	48.00	45.00	48.00	45.00	48.00	45.00	45.00	42.35	48.00	48.00	45.00	48.00	51.43	48.00	48.00	45.00	42.35	45.00	45.00	42.35	45.00	42.35	42.35	48.00	45.00	45.00	45.00	45.00	45.00	**45.6**
B	Kittery	NB Off-Ramp Cross Over	42.63	40.50	45.00	45.00	42.63	42.63	47.65	40.50	45.00	40.50	45.00	45.00	45.00	42.63	42.63	42.63	42.63	42.63	42.63	45.00	40.50	42.63	42.63	40.50	38.57	38.57	45.00	40.50	40.50	38.57	38.57	**42.1**
A	Kittery	Kittery Circle	23.76	34.94	33.00	31.26	27.00	28.29	24.75	33.00	33.00	29.70	34.94	33.00	33.00	33.00	29.70	29.70	33.00	29.70	31.26	31.26	29.70	29.70	34.94	33.00	29.70	31.26	33.00	33.00	33.00	33.00	28.29	**31.1**